"Vaccinia Virus Strains"
SEQ ID NOs:4-472 (even numbers) are the following amino acid sequences,
which are encoded by the indicated regions of the nucleotide sequence
set forth below (SEQ ID NO:2). The nucleotide sequences within SEQ ID
NO:2 that correspond to SEQ ID NOs:4-472 (even numbers) are 3-471 (odd
numbers), respectively.

FEATURES	Location/Qualifiers
source	1..199234
	/organism="Vaccinia virus"
gene	complement(577..1302)
	/gene="VACA2K001"
CDS	complement(577..1302)
	/gene="VACA2K001"
	/function="[ITR] chemokine-binding protein: host

defense
modulator"
/note="similar to VACWR001/218, VACCP-C23L/B29R"
/codon_start=1
/translation="MHVPASLQQSSSSCTEEENKHHMGIDVIIKVTKQDQTPTNDKIC
QSVTEITESESDPDPEVESEDDSTSVEDVDPPTTYYSIIGGGLRMNFGFTKCPQIKSI
SESADGNTVNARLSSVSPGQGKDSPAITHEEALAMIKDCEVSIDIRCSEEEKDSDIKT
HPVLGSNISHKKVSYEDIIGSTIVDTKCVKNLEFSVRIGDMCKESSELEVKDGFKYVD
GSASEGATDDTSLIDSTKLKACV"

gene	complement(1706..2146)
	/gene="VACA2K002"
CDS	complement(1706..2146)
	/gene="VACA2K002"
	/function="[ITR] gene fragment, TNF-alpha-

receptor-like:
host defense modulator"
/note="similar to VACWR002/217, VARBSH-G2R/203"
/codon_start=1
/translation="MRSCNTTHNRICECSPGYYCLLKGSSGCKACVSQTKCGIGYGVS
GDVICSPCGLGTYSHTVSSADKCEPVPRNTFNYIDVEINLYPVNDTSCTRTTTTGLSE
SISTSELTITMNHKDCDPVFRDGYFSVLNKVATSGFFTGERCAL"

gene	complement(2029..2397)
	/gene="VACA2K003"
CDS	complement(2029..2397)
	/gene="VACA2K003"
	/function="[ITR] gene fragment, TNF-alpha-

receptor-like:
host defense modulator"
/note="similar to VACWR004/215, VACCP-C22L/B28R,
VARBSH-G2R/203"
/codon_start=1

/translation="MKSVLYSYILFLSCIIINGRDIAPHAPSDGKCKDNEYKRHNLCP
GTYASRLCDSKTNTQCTPCGSGTFTSRNNHLPACLSCNGRCDRVTLLTIESVNALPDI
IVFSKDHPDARHVFPKQNVE"

gene	complement(2761..3096)
	/gene="VACA2K004"
CDS	complement(2761..3096)
	/gene="VACA2K004"
	/function="[ITR] gene fragment, ankyrin-like"
	/note="similar to VACWR006/213, VACCP-C21L/B27R"
	/codon_start=1

/translation="MLPHTSDTTSTFRLKTVFDLVFENRNIIYKADVVNDIIHHRLKV
PMIKSLFYKMSEFSPYDDYYVKKILAYCLLRDESFAELHSKFCLNEDYKSVFMKNISF
DKIDSIIVT"
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        gene                complement(3029..3415)
                            /gene="VACA2K005"
        CDS                 complement(3029..3415)
                            /gene="VACA2K005"
                            /function="[ITR] gene fragment, ankyrin-like"
                            /note="similar to VACWR007/212, VACCP-C20L/B26R"
                            /codon_start=1
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/translation="MEQTLTPLHTYLQQYTKHSPRVVYALLSRGYVIILIVHPSWNDC
ATGHILIMLLNWHEQKEEGQHLLYLFIKHNQGYTLNILRYLLDRFDIQKDEYYNTAFQ
NCNNNVASYIGYDINLPTKDGIRLGV"
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        gene                complement(3665..4078)
                            /gene="VACA2K006"
        CDS                 complement(3665..4078)
                            /gene="VACA2K006"
                            /function="[ITR] gene fragment, ankyrin-like"
                            /note="similar to VACWR008/211, VACCP-C19L/B25R"
                            /codon_start=1
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/translation="MSRINITKKIYCSVFFHIFNYEKVNHYEMDEIVRIVRDSMWYIP
NVFMDDGKNEGHVSVNNVCHMYFTFFDVDTSSHLFKLVIKHCDLNKRGNSPLHCYTMN
TRFNPSVLKILLHHGMRNFDSKDDHYQSITRSLIY"
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        gene                complement(4320..4916)
                            /gene="VACA2K007"
        CDS                 complement(4320..4916)
                            /gene="VACA2K007"
                            /function="[ITR] gene fragment, ankyrin-like"
                            /note="similar to VACCP-C18L/B24R"
                            /codon_start=1
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/translation="MYGLILSRFNNCGYHCYETILIDVFDILSKYMDNIDMIDNENKT
LLYYAVDVNNIQFAKRLLEYGASVTTSRSIINTAIQKSSYRRENKTKLVDLLLSYHPT
LETMIDAFNRDIRYLYPEPLFACIRYALIIDDDFPSKVKYDIAGRHKELKRYRVDINR
MKNAYISGVSMFDILFKRSKRHRLRYAKNPTSNGTKKN"
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        gene                complement(5010..6158)
                            /gene="VACA2K008"
        CDS                 complement(5010..6158)
                            /gene="VACA2K008"
                            /function="[ITR] gene fragment, ankyrin-like"
                            /note="similar to VACCP-C17L/B23R"
                            /codon_start=1
```

/translation="MIAFIIFREIGIISTRIAMDCTCILCRLLDEDVTYKKIKLEIET
CHNLSKHIDRRGNNALHCYVFNKCDTDIKIVRLLLSRGVERLCRNNEGLTPLGVYSKH
RYVKSQIVHLLISSYSNSSNELKSNINDFDLYSDNIDLRLLKYLIVDKRIRPSKNTNY
AINGLGLVDIYVTTPNPRPEVLLWLLKSECYSTGYVFRTCMYNSDMCKNSLHYYISSH
RESQSLSKDVIKCLINNNVSIHGRDEGGSLPIQYYWSFSTIDIEIVKLLLIKDVDTCR
VYDVSPILEAYYLNKRFRVTPYNVDMEIVNLLIERRHTLVDVMRSITSYDSREYNHYI
IDNILKRFRQQDESIVQAMLINYLHYGDMVVRCMLDNGQQLSSARLLC"
```
        gene                complement(6205..6750)
                            /gene="VACA2K009"
        CDS                 complement(6205..6750)
                            /gene="VACA2K009"
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                              /function="[ITR] unknown"
                              /note="similar to VACCP-C16L/B22R"
                              /codon_start=1
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/translation="MISLSFLIHNPLKKWKLKPSISINGYRSTFTMAFPCAQFRPCHC
HATKDSLNTVADVRHCLTEYILWVSHRWTHRETAGPLYRLLISFRTDATELFGGELKD
SLPWDNIDNCVEIIKCFIRNDSMKTAEELRAIIGLCTQSAIVSGRVFNDKYIDILLML
RKILNENDYLTLLDHIRTAKY"

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        gene                  complement(7086..7355)
                              /gene="VACA2K010"
        CDS                   complement(7086..7355)
                              /gene="VACA2K010"
                              /function="[ITR] unknown"
                              /note="similar to VACCP-C15L/B21R"
                              /codon_start=1
```

/translation="MSLESFIITTFNNNSSTNIDNMCHLYVKVCPSSLLFRLFVECCD
INKLVEGTTPLHCYLMNEGFESSVLKNLLKEYVMTVMVTFHYTNI"

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        gene                  complement(7766..7921)
                              /gene="VACA2K011"
        CDS                   complement(7766..7921)
                              /gene="VACA2K011"
                              /function="[ITR] gene fragment, unknown"
                              /note="similar to CPXVBR-V223, VARBSH-B22R/200"
                              /codon_start=1
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/translation="MNLQKLSLAIYLTATCSWCYETCIRKTALYHDIQLEHVEDNKDS
VASLPYK"

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        gene                  complement(8173..8745)
                              /gene="VACA2K012"
        CDS                   complement(8173..8745)
                              /gene="VACA2K012"
                              /function="[ITR] unknown"
                              /note="similar to VACWR206, VACCP-C14L"
                              /codon_start=1
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/translation="MMIYGLIACLIFVTSSIASPLYIPVIPPITEDKSFNSVEVLVSL
FRDDQKDYTVTSQFNNYTIDTKDWTIGVLSTPDGLDIPLTNITYWSRFTIGRALFKSE
.SEDIFQKKMSILGVSIECKKSSTLLTFLTVRKMTRVFNKFPDMAYYRGDCLKAVYVTM
TYKNTKTGETDYTYLSNGGLPAYYRNGVDG"

```
        gene                  complement(8901..9974)
                              /gene="VACA2K013"
        CDS                   complement(8901..9974)
                              /gene="VACA2K013"
                              /function="[ITR] serine protease inhibitor-like
SPI-1:
                              host defense modulator"
                              /note="similar to VACWR205, VACCP-C12L"
                              /codon_start=1
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/translation="MDIFKELIVKHPDENVLISPVSILSTLSILNHGAAGSTAEQLSK
YIENMNENTPDDKKDDNNDMDVDIPYCATLATANKIYGSDSIEFHASFLQKIKDDFQT
VNFNNANQTKELINEWVKTMTNGKINSLLTSPLSINTRMTVVSAVHFKAMWKYPFSKH
LTYTDKFYISKNIVTSVDMMVGTENNLQYVHINELFGGFSIIDIPYEGNSSMVIILPD
DIEGIYNIEKNITDEKFKKWCGMLSTKSIDLYMPKFKVEMTEPYNLVPILENLGLTNI
FGYYADFSKMCNETITVEKFLHTTFIDVNEEYTEASAVTGVFMTNFSMVYRTKVYINH
PFMYMIKDNTGRILFIGKYCYPQ"

```
     gene                10397..10816
                         /gene="VACA2K014"
     CDS                 10397..10816
                         /gene="VACA2K014"
                         /function="[ITR] secreted epidermal growth factor-
like:
                         binds EGF receptor"
                         /note="similar to VACWR009/210,VACCP-C11R"
                         /codon_start=1

/translation="MSMKYLMLLFAAMIIRSFADSGNAIETTLPEITNATTDIPAIRL
CGPEGDGYCLHGDCIHARDIDGMYCRCSHGYTGIRCQHVVLVDYQRSEKPNTTTSYIP
SPGIMLVLVGIIIMCCLLSVYRFTRRTKLPLQDMVVP"
     gene                complement(10969..11964)
                         /gene="VACA2K015"
     CDS                 complement(10969..11964)
                         /gene="VACA2K015"
                         /function="[ITR] unknown"
                         /note="similar to VACWR010/209, VACCP-C10L"
                         /codon_start=1

/translation="MDIYDDKGLQTIKLFNNEFDCIRNDIRELFKHVTDSDSIQLPME
DNSDIIENIRKILYRRLKNVECVDIDNTITFMKYDPNDDNKRTCSNWVPLTNNYMEYC
LVIYLETPICGGKIKLYHPTGNIKSDKDIMFAKTLDFKSKKVLTGRKTIAVLDISVSY
NRSITTIHYNDDVDIDIHTDKNGKELCYCYITIDDHYLVDVETIGVIVNRSGKCLLVN
NHLGIGIVKDKRISDSFGDVCMDTIFDFSEARELFSLTNDDNRNIAWDTDKLDDDTDI
WTPVTEDDYKFLSRLVLYAKSQSDTVFDYYVLTGDTEPPTVFIFKVTRFYFNMLK"
     gene                12572..12823
                         /gene="VACA2K016"
     CDS                 12572..12823
                         /gene="VACA2K016"
                         /function="[ITR] gene fragment, zinc finger-like:
                         apoptosis: host defense modulator"
                         /note="similar to VACWR011/208, 242aaVARBSH-
D6R/005"
                         /codon_start=1

/translation="MHYPKYYINITKINPHLANQFRAWKKRIAGRDYMTNLSRDTGIQ
QSKLTETIRNCQKNRNIYGLYIHYNLVINWITDVIINQY"
     gene                12968..13156
                         /gene="VACA2K017"
     CDS                 12968..13156
                         /gene="VACA2K017"
                         /function="[ITR] gene fragment, zinc finger-like:
                         apoptosis: host defense modulator"
                         /note="similar to VACWR012/207, 242aa VARBS-
D6R/005"
                         /codon_start=1

/translation="MKLFTQNDRYFGLLDSCNHIFCITCINIWHKTRRETGASDNCPI
CRTRFRNITMSKFYKLVN"
     gene                complement(13325..13699)
                         /gene="VACA2K018"
     CDS                 complement(13325..13699)
                         /gene="VACA2K018"
                         /function="[ITR] interleukin-18-binding protein:
host
```

defense modulator: absent from VACCP"
                              /note="similar to VACWR013/VARBSH-D7L/006"
                              /codon_start=1

/translation="MRILFLIAFMYGCVHPYVNADEIKCPNLNIVTSSGEFRCTGCVK
FMPNFSYMYWLAKDMRSDEDTKFIEHLGDGIKEDETVRTIDGRIVTLQKVLHVTDTNK
                              FAHYRFTCVLTTIDGIYKKNVC"
         gene   complement(13758..14030)
                              /gene="VACA2K019"
         CDS   complement(13758..14030)
                              /gene="VACA2K019"
                              /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                              host-range"
                              /note="similar to VACWR014, CPXVBR-V024"
                              /codon_start=1

/translation="MKKIMVGGNTMFSLIFTDHGAKIIHRYANNPELREYYELKQNKI
YVEAYDIISNAIVKHDRIHKTIESVDDNTYISNLPYTIKYKIFEQQ"
         gene   complement(14043..14471)
                              /gene="VACA2K020"
         CDS   complement(14043..14471)
                              /gene="VACA2K020"
                              /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                              host-range"
                              /note="similar to VACWR014, CPXVBR-V024"
                              /codon_start=1

/translation="MSYACPILSTINICLPYLKDINMIDKRGETLLHKAVRYNKQSLV
SLLLESGSDVNIRSNNGYTCIAIAINESKNIELLKMLLCHKPTLDYVIDSLREISNIV
DNYYAIKQCIKYAMIIDDCTSSKIPESISQRYNDYIDLCN"
         gene   complement(14560..14967)
                              /gene="VACA2K021"
         CDS   complement(14560..14967)
                              /gene="VACA2K021"
                              /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                              host-range"
                              /note="similar to VACWR015, CPXVBR-V024"
                              /codon_start=1

/translation="MKGIDNTAYSYIDDLTCCTRGIMADYLNSDYRYNKDVDLVKLFL
ENGKPHGIMCSIVPLWRNDKETIFLILKTMNSDVLQHILIEYMTFGDIPLVEYGTVVN
KEAIHGYFRNINIDSYTMKYLLKKEGRCHQLSR"
         gene   complement(15216..15449)
                              /gene="VACA2K022"
         CDS   complement(15216..15449)
                              /gene="VACA2K022"
                              /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                              host-range"
                              /note="similar to VACWR016, CPXVBR-V024"
                              /codon_start=1

/translation="MLKLKDIAMALLEATGFSNINDFNIFSYMKSKNVDVDLIKVLVE
HGFDLSVKCENHRSVIENYVMTMILFLKLLICS"

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          gene            complement(15471..15686)
                          /gene="VACA2K023"
          CDS             complement(15471..15686)
                          /gene="VACA2K023"
                          /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                          host-range"
                          /note="similar to VACWR017, CPXVBR-V024"
                          /codon_start=1

/translation="MFDYLENEEVALDELKQMLRDRDPNDTRNQFKNNALHAYLFNEH .
CNNVEVVKLLLDSGTNPLRKNWRQLPH"
          gene            complement(15790..15957)
                          /gene="VACA2K024"
          CDS             complement(15790..15957)
                          /gene="VACA2K024"
                          /function="[ITR] unknown"
                          /note="similar to VACWR018"
                          /codon_start=1

/translation="MSSKGGSGGMWSVFIHGHDGSNKGSKTYTSGGGGMWGGGSSSGV
NGGVKSGTGKI"
          gene            complement(16130..18034)
                          /gene="VACA2K025"
          CDS             complement(16130..18034)
                          /gene="VACA2K025"
                          /function="[ITR] ankyrin-like"
                          /note="similar to VACWR019, VACCP-C9L"
                          /codon_start=1

/translation="MVNDKILYDSCKTFNIDASSAQSLIESGANPLYEYDGETPLKAY
VTKKNNNIKNDVVILLLSSVDYKNINDFDIFEYLCSDNIDIDLLKLLISKGIEINSIK
NGINIVEKYATTSNPNVDVFKLLLDKGIPTCSNIQYGYKIKIEQIRRAGEYYNWDDEL
DDYDYDYTTDYDDRMGKTVLYYYIITRSQDGYATSLDVINYLISHEKEMRYYTYREHT
TLYYYLDKCDIKREIFDALFDSNYSGHELMNILSNYLRKQFRKKNHKIDNYIVDQLLF
DRDTFYILELCNSLRNNILISTILKRYTDSIQDLLLEYVSYHTVYINVIKCMIDEGAT
LYRFKHINKYFQKFGNRDPKVVEYILKNGNLVVNNDNDDNLINIMPLFPTFSMRELDV
LSILKLCKPYINDINKIDKHGCSILYHCIKSHSVSLVEWLIDNGTDINIITKYGFTCI
TICVILADKYIPEIAELYIKILEIILSKLPTIECIKKTVDYLDDHRYLFIGGNNKSLL
KICIKYFILVDYKYTCSMYPSYIEFITDCEKEIADMRQIKINGTDMLTVMYMLNKPTK
KRYVNNPIFTDWANKQYKFYNQIIYNANKLIEQSKKIDDMIEEVSIDDNRLSTLPLEI
RHLIFSYAFL"
          gene            complement(18077..18610)
                          /gene="VACA2K026"
          CDS             complement(18077..18610)
                          /gene="VACA2K026"
                          /function="[ITR] unknown"
                          /note="similar to VACWR020, VACCP-C8L"
                          /codon_start=1

/translation="MSAIRFIACLYLISIFGNCHEDPYYQPFDKLNITLDIYTYEDLV
PYTVDNDTTSFVKIYFKKFWITVMTKWCAPFIDTVSVYTSHDNLNIQFYSRDEYDTQS
EDKICTIDVKARCKHLTKREVTVQQEAYRYSLSSDLSCFDSIDLEIDLIETNSTDTTV
LKSYELMLPKRAKSIHN"
          gene            complement(18682..19134)
                          /gene="VACA2K027"
          CDS             complement(18682..19134)
```

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```
                              /gene="VACA2K027"
                              /function="host-range: possible host defense
modulator"
                              /note="similar to VACWR021, VACCP-C7L"
                              /codon_start=1

/translation="MGIQHEFDIIINGDIALRNLQLHKGDNYGCKLKIISNDYKKLKF
RFIIRPDWSEIDEVKGLTVFANNYAVKVNKVDDTFYYVIYEAVIHLYNKKTEILIYSD
DENELFKHYYPYISLNMISKKYKVKEENYSSPYIEHPLIPYRDYESMD"
        gene              complement(19363..19818)
                              /gene="VACA2K028"
        CDS               complement(19363..19818)
                              /gene="VACA2K028"
                              /function="unknown"
                              /note="similar to VACWR022, VACCP-C6L"
                              /codon_start=1

/translation="MNAYNKADSFSLESDSIKDVIHDYICWLSMTDEMRPSIGNVFKA
METFKIDAVRYYDGNIYDLAKDINAMSFDSFIRSLQNISSKKDKLTVYGTMGLLSIVV
DINKGCDISNIKFAAGIIILMEYIFDDTDLSHLKVALYRRIQRRDDVDR"
        gene              complement(19937..20551)
                              /gene="VACA2K029"
        CDS               complement(19937..20551)
                              /gene="VACA2K029"
                              /function="unknown"
                              /note="similar to VACWR023, VACCP-C5L"
                              /codon_start=1

/translation="MAYMNRSDLDKLKHENIFSGNIIEDAKEFVFGSRKIYTDSVDDL
IELYSLAKYLNNENLKDVVIERMDYVCKYIGKDNWSTIYSFYKENGLRNSFLRQYINN
NIEEICNTDQFLKLDVDSVCDILDNDEIVVTREYTILNMVLRWLENKRVNIDDFTKVM
FVIRFKFITYSELTNAIEKIAPEYRQCLQDLYHMKITRPRHFDN"
        gene              complement(20614..20802)
                              /gene="VACA2K030"
        CDS               complement(20614..20802)
                              /gene="VACA2K030"
                              /function="gene fragment, unknown"
                              /note="similar to VACWR024, VACCP-C4L"
                              /codon_start=1

/translation="MESGNNTWIPKTDDEYKFLSKLMNIAKFNNTKFDYYVLVGDTDP
CTVFTFKVTKYYINLNYE"
        gene              complement(20789..21199)
                              /gene="VACA2K031"
        CDS               complement(20789..21199)
                              /gene="VACA2K031"
                              /function="gene fragment, unknown"
                              /note="similar to VACWR024, VACCP-C4L"
                              /codon_start=1

/translation="MFSKSLNFRFENVKRDYKLVMCSISLTYKPSICRIQYDNNKYLD
ISDSQECNNICYCVITMDPHHLIDLETICVLVDKSGKCLLVNEFYIRFRKNHIYNSFT
DLCMDYIFELPNTKELFTLRNDDGRNIAWDNGKW"
        gene              complement(21368..21547)
                              /gene="VACA2K032"
        CDS               complement(21368..21547)
                              /gene="VACA2K032"
```

```
                         /function="gene fragment, unknown"
                         /note="similar to VACWR024, VACCP-C4L"
                         /codon_start=1

    /translation="MDTIKIFNHGEFDTIRNELVNLLKVVKWNTINSNVTVSSTDTIN
ISERYYTNSLKMYEI"
         gene            complement(21614..22405)
                         /gene="VACA2K033"
         CDS             complement(21614..22405)
                         /gene="VACA2K033"
                         /function="secreted complement binding [C3b/C4b]:
host
                         defense modulator"
                         /note="similar to VACWR025, VACCP-C3L"
                         /codon_start=1

    /translation="MKVESVTFLTLLGIGCVLSCCTIPSRPINMKFKNSVETDANANY
NIGDTIEYLCLPGYRKQKMGPIYAKCTGTGWTLFNQCIKRRCPSPRDIDNGQLDIGGV
DFGSSITYSCNSGYHLIGESKSYCELGSTGSMVWNPEAPICESVKCQSPPSISNGRHN
GYEDFYTDGSVVTYSCNSGYSLIGNSGVLCSGGEWSDPPTCQIVKCPHPTISNGYLSS
GFKRSYSYNDNVDFKCKYGYKLSGSSSSTCSPGNTWQPELPKCVR"
         gene            complement(22473..23993)
                         /gene="VACA2K034"
         CDS             complement(22473..23993)
                         /gene="VACA2K034"
                         /function="kelch-like"
                         /note="similar to VACWR026, VACCP-C2L"
                         /codon_start=1

    /translation="MESVIFSINGEIIQVNKEIITASPYNFFKRIQEHHINDEVIILN
GINYHAFESLLDYMRWKKINITINNVEMILVAAVIIDVTPVVDLCVKTMIHNINSTNC
IRMFNFSKRYGIKKLYNASMSEIINNITAVTSDPEFGKLSKDELTTILSHEDVNVNHE
DVTAMILLKWIHKNPNDVDIINILHPKFMTNTMRNAISLLGLTISKSTKPVTRNGIKH
NIVVIKNSDYISTITHYSPRTEYWTIVGNTDRQFYNANVLHNCLYIIGGMINNRHVYS
VSRVDLKTKKWKTVTNMSSLKSEVSTCVNDGKLYVIGGLEFSISTGVAEYLKHGTSKW
IRLPNLITPRYSGASVFVNDDIYVMGGVYTTYEKYVVLNDVECFTKNRWIKKSPMPRH
HSIVYAVEYDGDIYVITGITHETRNYLYKYIVKEDKWIELYMYFNHVGKMFVCSCGDY
ILIIADAKYEYYPKSNTWNLFDMSTRNIEYYDMFTKDETHKSLPSFLSNCEKQFLQ"
         gene            complement(24063..24737)
                         /gene="VACA2K035"
         CDS             complement(24063..24737)
                         /gene="VACA2K035"
                         /function="unknown"
                         /note="similar to VACWR027, VACCP-C1L"
                         /codon_start=1

    /translation="MVKNNKISNSCRMIMSTNPNNILMRHLKNLTDDEFKCIIHRSSD
FLYLSDRDYTSITKETLVSEIVEEYPDDCNKILAIIFLVLDKDIDVDIKTKLKPKPAV
RFAILDKMTEDIKLTDLVRHYFRYIEQDIPLGPLFKKIDSYRTRAINKYSKELGLATE
YFNKYGHLMFYTLPIPYNRFFCRNSIGFLAVLSPTIGHVKAFYKFIEYVSIDDRRKFK
KELMSK"
         gene            complement(24724..25077)
                         /gene="VACA2K036"
         CDS             complement(24724..25077)
                         /gene="VACA2K036"
                         /function="virokine: host defense modulator"
                         /note="similar to VACWR028, VACCP-N1L"
```

/translation="MRTLLIRYILWRNDNDQTYYNDDFKKLMLLDELVDDGDVCTLIK
NMRMTLSDGPLLDRLNQPVNNIEDAKRMIAISAKVARDIGERSEIRWEESFTILFRMI
ETYFDDLMIDLYGEK"
```
        gene                 complement(25196..25723)
                             /gene="VACA2K037"
        CDS                  complement(25196..25723)
                             /gene="VACA2K037"
                             /function="alpha-amanitin target"
                             /note="similar to VACWR029, VACCP-N2L"
                             /codon_start=1
```

/translation="MTSSAMDNNEPKVLEMVYDATILPEGSSMDPNIIDCINRHINMC
IQRTYSSSIIAILDRFLTMNKDELNNTQCHIIKEFMTYEQMAIDHYGGYVNAILYQIR
KRPNQHHTIDLFKKIKRTRYDTFKVDPVEFVKKVIGFVSILNKYKPVYSYVLYENVLY
DEFKCFINYVETKYF"
```
        gene                 complement(25765..27174)
                             /gene="VACA2K038"
        CDS                  complement(25765..27174)
                             /gene="VACA2K038"
                             /function="ankyrin-like"
                             /note="similar to VACWR030, VACCP-M1L"
                             /codon_start=1
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/translation="MIFVIESKLLQIYRNRNRNINFYTTMDNIMSAEYYLSLYAKYNS
KNLDVFRNMLQAIEPSGNNYHILHAYCGIKGLDERFVEELLHRGYSPNETDDDGNYPL
HIASKINNNRIVAMLLTHGADPNACDKHNKTPLYYLSGTDDEVIERINLLVQYGAKIN
NSVDEEGCGPLLACTDPSERVFKKIMSIGFEARIVDKFGKNHIHRHLMSDNPKASTIS
WMMKLGISPSKPDHDGNTPLHIVCSKTVKYVDIIDLLLPSTDVNKQNKFGDSPLTLLI
KTLSLAHLINKLLSTSNVITDQTVNICIFYDRDDVLEIINDKGKQYDFKMAVEVGSIR
CVKYLLDNDIICEDAMYYAVLSEYKTMVDYLLFNHFSVDSVVNGHTCMSECVRLNNPV
ILSKLMLHNPTSETMYLTMKAIEKDRLDKSIIIPFIAYFVLMHPDFCKNRRYFTSYKR
FVTDYVHEGVSYEVFDDYF"
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        gene                 complement(27152..27814)
                             /gene="VACA2K039"
        CDS                  complement(27152..27814)
                             /gene="VACA2K039"
                             /function="unknown"
                             /note="similar to VACWR031, VACCP-M2L"
                             /codon_start=1
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/translation="MVYKLVLLFCIASLGYSVEYKNTICPPRQDYRYWYFAAELTIGV
NYDINSTIIGECHMSESYIDRNANIVLTGYGLEINMTIMDTDQRFVAAAEGVGKDNKL
SVLLFTTQRLDKVHHNISVTITCMEMNCGTTKYDSDLPESIHKSSSCDITINGSCVTC
VNLETDPTKINPHYLHPKDKYLYHNSEYGMRGSYGVTFIDELNQCLLDIKELSYDICY
RE"
```
        gene                 complement(27949..28803)
                             /gene="VACA2K040"
        CDS                  complement(27949..28803)
                             /gene="VACA2K040"
                             /function="ankyrin-like: host-range"
                             /note="similar to VACWR032, VACCP-K1L"
                             /codon_start=1
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/translation="MDLSRINTWKSKQLKSFLSSKDTFKADVHGHSALYYAIADNNVR
LVCTLLNAGALKNLLENEFPLHQAATLEDTKIVKILLFSGLDDSQFDDKGNTALYYAV

DSGNMQTVKLFVKKNWRLMFYGKTGWKTSFYHAVMLNDVSIVSYFLSEIPSTFDLAIL
LSCIHITIKNGHVDMMILLLDYMTSTNTNNSLLFIPDIKLAIDNKDIEMLQALFKYDI
NIYSANLENVLLDDAEIAKMIIEKHVEYKSDSYTKDLDIVKNNKLDEIISKNKELRLM
YVNCVKKN"
```
        gene                complement(29025..30134)
                            /gene="VACA2K041"
        CDS                 complement(29025..30134)
                            /gene="VACA2K041"
                            /function="serine protease inhibitor-like: SPI-3,
prevents
                            syncytia: host range determinant: host defense
modulator"
                            /note="similar to VACWR033, VACCP-K2L"
                            /codon_start=1
```

/translation="MIALLILSLTCSVSTYRLQGFTNAGIVAYKNIQDDNIVFSPFGY
SFSMFMSLLPASGNTRIELLKTMDLRKRDLGPAFTELISGLAKLKTSKYTYTDLTYQS
FVDNTVCIKPSYYQQYHRFGLYRLNFRRDAVNKINSIVERRSGMSNVVDSNMLDNNTL
WAIINTIYFKGIWQYPFDITKTRNASFTNKYGTKTVPMMNVVTKLQGNTITIDDEEYD
MVRLPYKDANISMYLAIGDNMTHFTDSITAAKLDYWSFQLGNKVYNLKLPRFSIENKR
DIKSIAEMMAPSMFNPDNASFKHMTRDPLYIYKMFQNAKIDVDEQGTVAEASTIMVAT
ARSSPEKLEFNTPFVFIIRHDITGFILFMGKVESP"
```
        gene                complement(30184..30450)
                            /gene="VACA2K042"
        CDS                 complement(30184..30450)
                            /gene="VACA2K042"
                            /function="interferon resistance: host defense
modulator"
                            /note="similar to VACWR034, VACCP-K3L"
                            /codon_start=1
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/translation="MLAFCYSLPNAGDVIKGRVYENDYALYIYLFDYPHFEAILAESV
KMHMDRYVEYRDKLVGKTVKVKVIRVDYTKGYIDVNYKRMCRHQ"
```
        gene                complement(30502..31776)
                            /gene="VACA2K043"
        CDS                 complement(30502..31776)
                            /gene="VACA2K043"
                            /function="phospholipase-D-like"
                            /note="similar to VACWR035, VACCP-K4L"
                            /codon_start=1
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/translation="MNPDNTIAVITETIPIGMQFDKVYLSTFNMWREILSNTTKTLDI
SSFYWSLSDEVGTNFGTIILNEIVQLPKRGVRVRVAVNKSNKPLKDVERLQMAGVEVR
YIDITNILGGVLHTKFWISDNTHIYLGSANMDWRSLTQVKELGIAIFNNRNLAADLTQ
IFEVYWYLGVNNLPYNWKNFYPSYYNTDHPLSINVSGVPHSVFIASAPQQLCTMERTN
DLTALLSCIRNASKFVYVSVMNFIPIIYSKAGKILFWPYIEDELRRSAIDRQVSVKLL
ISCWQRSSFIMRNFLRSIAMLKSKNIDIEVKLFIVPDADPPIPYSRVNHAKYMVTDKT
AYIGTSNWTGNYFTDTCGASINITPDDGLGLRQQLEDIFMRDWNSKYSYELYDTSPTK
RCKLLKNMKQCTNDIYCDEIQPEKEIPEYSLE"
```
        gene                complement(31907..32317)
                            /gene="VACA2K044"
        CDS                 complement(31907..32317)
                            /gene="VACA2K044"
                            /function="gene fragment, putative monoglyceride
lipase"
                            /note="similar to VACWR037, VACCP-K5L"
```

/translation="MGATISILASYDNPNLFTAMILMSPLVNADAVSKLNLLAAKLMG
TITPNAPVGKLCPESVSRDMDKVYKYQYDPLINHEKIKAGFASQVLKATNKVRKIISK
INTPRLSYSREQTMRLVMFQVHIISCNMQIVIEK"

    gene   complement(32339..32584)
                            /gene="VACA2K045"
    CDS   complement(32339..32584)
                            /gene="VACA2K045"
                            /function="gene fragment, putative monoglyceride
lipase"
                            /note="similar to VACWR038, VACCP-K6L"
                            /codon_start=1

/translation="MSANCMFNLDNDYIYWKPITYPKALVFISHGAGKHSGRYDELAE
NISSLGILVFSHDHIGHGRSNGEKMMIDDFGTARGNY".
    gene   32723..33172
                            /gene="VACA2K046"
    CDS   32723..33172
                            /gene="VACA2K046"
                            /function="unknown"
                            /note="similar to VACWR039, VACCP-K7R"
                            /codon_start=1

/translation="MATKLDYEDAVFYFVDDDKICSRDSIIDLIDEYITWRNHVIVFN
KDITSCGRLYKELMKFDDVAIRYYGIDKINEIVEAMSEGDHYINFTKVHDQESLFATI
GICAKITEHWGYKKISESRFQSLGNITDLMTDDNINILILFLEKKLN"
    gene   complement(33237..33917)
                            /gene="VACA2K047"
    CDS   complement(33237..33917)
                            /gene="VACA2K047".
                            /function="unknown"
                            /note="similar to VACWR040, VACCP-F1L"
                            /codon_start=1

/translation="MLSMFMCNNIVDYVDDIDNGIVHDIEDEASNNVDHDYVYPLPEN
MVYRFDKSTNILDYLSTERDHVMMAVRYYMSKQRLDDLYRQLPTKTRSYIDIINIYCD
KVSNDYNRDMNIMYDMASTKSFTVYDINNEVNTILMDNKGLGVRLATISFITKLGRRC
MNPVKTIKMFTLLSHTICDDCFVDYITDISPPDNTIPNTSTREYLKLIGITAIMFATY
KTLKYMIG"
    gene   complement(33929..34372)
                            /gene="VACA2K048"
    CDS   complement(33929..34372)
                            /gene="VACA2K048"
                            /function="dUTPase"
                            /note="similar to VACWR041, VACCP-F2L"
                            /codon_start=1

/translation="MFNMNINSPVRFVKETNRAKSPTRQSPGAAGYDLYSAYDYTIPP
GERQLIKTDISMSMPKICYGRIAPRSGLSLKGIDIGGGVIDEDYRGNIGVILINNGKC
TFNVNTGDRIAQLIYQRIYYPELEEVQSLDSTNRGDQGFGSTGLR"
    gene   complement(34396..35838)
                            /gene="VACA2K049"
    CDS   complement(34396..35838)
                            /gene="VACA2K049"
                            /function="kelch-like"
                            /note="similar to VACWR042, VACCP-F3L"

/codon_start=1

/translation="MPIFVNTVYCKNILALSMTKKFKTIIDAIGGNIIVNSTILKKLS
PYFRTHLRQKYTKNKDPVTRVCLDLDIHSLTSIVIYSYTGKVYIDSHNVVNLLRASIL
TSVEFIIYTCINFILRDFRKEYCVECYMMGIEYGLSNLLCHTKNFIAKHFLELEDDII
DNFDYLSMKLILESDELNVPDEDYVVDFVIKWYIKRRNRLGNLLLLIKNVIRSNYLSP
RGINNVKWILDCTKIFHCDKQPRKSYKYPFIEYPMNMDQIIDIFHMCTSTHVGEVVYL
IGGWMNNEIHNNAIAVNYISNNWIPIPPMNSPRLYASGIPANNKLYVVGGLPNPTSVE
RWFHGDAAWVNMPSLLKPRCNPAVASINNVIYVMGGHSETDTTTEYLLPNHDQWQFGP
STYYPHYKSCALVFGRRLFLVGRNAEFYCESSNTWTLIDDPIYPRDNPELIIVDNKLL
LIGGFYRESYIDTIEVYNHHTYSWNIWDGK"
              gene   complement(35849..36808)
                               /gene="VACA2K050"
              CDS   complement(35849..36808)
                               /gene="VACA2K050"
                               /function="ribonucleotide reductase small subunit"
                               /note="similar to VACWR043, VACCP-F4L"
                               /codon_start=1

/translation="MEPILAPNPNRFVIFPIQYYDIWNMYKKAEASFWTVEEVDISKD
INDWNKLTPDEKYFIKHVLAFFAASDGIVNENLAERFCTEVQITEARCFYGFQMAIEN
IHSEMYSLLIDTYVKDSNEKNYLFNAIETMPCVKKKADWAQKWIHDSAGYGERLIAFA
AVEGIFFSGSFASIFWLKKRGLMPGLTFSNELISRDEGLHCDFACLMFKHLLYPPSEE
TVRYIITDAVSIEQEFLTAALPVKLIGMNCEMMKTYIEFVADRLISELGFKKIYNVTN
PFDFMENISLEGKTNFFEKRVGEYQKMGVMSQKDNHFSLDVDF"
              gene   complement(36840..37805)
                               /gene="VACA2K051"
              CDS   complement(36840..37805)
                               /gene="VACA2K051"
                               /function="unknown"
                               /note="similar to VACWR044, VACCP-F5L"
                               /codon_start=1

/translation="MGTNGVRVFVILYLLAVCGCIEYDVDDNVHICTHTNVSHINHTS
WYYNDKVIALATEDKTSGYISSFIKRVNISLTCLNISSLRYEDSGTYKGVSHLKDGVI
VTTTMNISVKANIIDLTGRVRYLTRNYCEVKIRCEITSFALNGSTTPPHMILGTVDKW
KYLPFPTDDYRVGELKRYISGNPYPTESLALEISSTFNRFTIVKNLNDDEFSCYLFS
QNYSFHKMLNVRNICESKWKALNNNDNASSMPASHNNLANDLFSMMSQLQNDNDDNND
YSAPMNVDNLIMIVLITMLSIILVIIVVIAAISMYKKSKYRHIDN"
              gene   complement(37835..38059)
                               /gene="VACA2K052"
              CDS   complement(37835..38059)
                               /gene="VACA2K052"
                               /function="unknown"
                               /note="similar to VACWR045, VACCP-F6L"
                               /codon_start=1

/translation="MSKILTFVKNKIIDLINNDQIKYSRVIMIEESDSLLPVDEVHAN
HGFDCVEMIDENISNENIEQYKTESFFTIN"
              gene   complement(38075..38317)
                               /gene="VACA2K053"
              CDS   complement(38075..38317)
                               /gene="VACA2K053"
                               /function="unknown"
                               /note="similar to VACWR046, VACCP-F7L"
                               /codon_start=1

/translation="MTLVMGSCCGRFCDAKNKNKKEDVEEGREGCYNYKNLNDLDESE
ARVEFGPLYMINEEKSDINTLDIKRRYRHTIESVYF"
```
       gene            complement(38461..38658)
                       /gene="VACA2K054"
       CDS             complement(38461..38658)
                       /gene="VACA2K054"
                       /function="protein with iActA-like proline
repeats: not
                       required for actin tails formation"
                       /note="similar to VACWR047, VACCP-F8L"
                       /codon_start=1
```

/translation="MEGSKRRHDSRRPQQEQEQPRPRTPPSYEEIAKYGHSFNVKRFT
NKEMCLKNDYPRIISYNPPPK"
```
       gene            complement(38718...39356)
                       /gene="VACA2K055"
       CDS             complement(38718..39356)
                       /gene="VACA2K055"
                       /function="S-S bond formation pathway: thiol
substrate"
                       /note="similar to VACWR048, VACCP-F9L"
                       /codon_start=1
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/translation="MAETKEFKTLYNLFIDSYLQKLAQHSIPTNVTCAIHIGEVIGQF
KNCALRITNKCMSNSRLSFTLMVESFIEVISLLPEKDRRAIAEEIGIDLDDVPSVVSK
LEKNCNAYAEVNNIIDIQKLDIGECSAPPGQHMLLQIVNTGSAEANCGLQTIVKSLNK
IYVPPIIENRLPYYDPWFLVGVAIILVIFTVAICSIRRNLALKYRYGTFLYV"
```
       gene            complement(39343..40662)
                       /gene="VACA2K056"
       CDS             complement(39343..40662)
                       /gene="VACA2K056"
                       /function="ser/thr kinase"
                       /note="similar to VACWR049, VACCP-F10L"
                       /codon_start=1
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/translation="MGVANDSSPEYQWMSPHRLSDTVILGDCLYFNNIMSQLDLHQNW
APSVRLLNYFKNFNRETLLKIEENDYINSSFFQQKDKRFYPINDDFYHISTGGYGIVF
KIDNYVVKFVFEATKLYSPMETTAEFTVPKFLYNNLKGDEKKLIVCAWAMGLNYKLTF
LHTLYKRVLHMLLLLIQTMDGQELSLRYSSKVFLKAFNERKDSIKFVKLLSHFYPAVI
NSNINVINYFNRMFHFFEHEKRTNYEYERGNIIIFPLALYSADKVDTELAIKLGFKSL
VQYIKFIFLQMALLYIKIYELPCCDNFLHADLKPDNILLFDSNEPIIHLKDKKFVFN
ERIKSALNDFDFSQVAGIINKKIKNNFKVKHNWYYDFHFFVHTLLKTYPEIEKDIEFS
TALEEFIMCTKTDCDKYRLKVSILHPISFLEKFIMRDIFSDWINGGN"
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       gene            complement(40685..41731)
                       /gene="VACA2K057"
       CDS             complement(40685..41731)
                       /gene="VACA2K057"
                       /function="unknown"
                       /note="similar to VACWR050, VACCP-F11L"
                       /codon_start=1
```

/translation="MGFCIPLRSKMLKRGSRKSSSILARRPTPKKMNIVTDLENRLKK
NSYIENTNQGNILMDSIFVSTMPVETLFGSYITDDSDDYELKDLLNVTYNIKPVIVPD
IKLDAVLDRDGNFRPADCFLVKLKHRDGFTKGALYLGHSAGFTATICLKNEGVSGLYI
PGTSVIRSNICQGDTIVSRSSRGVQFLPQIGGEAIFLIVSLCPTKKLVETGFVIPEIS

13

SNDNAKIAARILSEKRKDTIAHIDTLIQHRQQLELAYYNSCMLTEFLHYCNSYAGTIK
ESLLKETIQKDINITHTNITTLLNETAKVIKLVKSLVDKEDTDIVNNFITKEIKNRDK
IVNSLSLSNLDFRL"
<pre>
        gene   complement(41774..43681)
                            /gene="VACA2K058"
        CDS   complement(41774..43681)
                            /gene="VACA2K058"
                            /function="involved in plaque and EEV formation:
on IEV,
                            not CEV, IV or IMV"
                            /note="similar to VACWR051, VACCP-F12L"
                            /codon_start=1
</pre>

/translation="MLNRIQTLMKTANNYETIEILRNYLRLYIILARNEEGHGILIYD
DNIDSIMSMMNITRLEVIGLTTHCTKLRSSPPIPMSRLFMDEIDHESYYSPKTSDYPL
IDIIRKRSHEQGDIALALEQYGIENTDSISEINEWLSSKGLACYRFVKFNDYRKQMYR
KFSRCTIVDSMIIGHIGHHYIWIKNLETYTRPEIDVLPFDIKYISRDELWARISSSLD
QTHIKTIAVSVYGAITDNGPIPYMISTYPGNTFVNFNSVKDLILYFLDWIKDIMTSTR
TIILVGYMSNLFDIPLLTVYWPNNCGWKIYNNTLISSDGARVIWMDAYKFSCGLSLQD
YCYHWGSKPESRPFDLIKKSDAKRNSKSLVKESMASLKSLYEAFETQSGALEVLMSPC
RMFSFSRIEDMFLTSVINRVSENTGMGMYYPTNDIPFLFIESSICLDYIIVNNQESNK
YRIKSVLDIISSKQYPAGRPNYVKNGTKGKLYIALCKVTVPTNDHIPVVYHDDDNTTT
FITVLTSVDIETAIRAGYSIVELGALQWDDNIPELKDCLLDSIKMIYDLNAVTTNNLL
EQLIENINFNNSSIISLFYTFAISYCRAFIYSIMETIDPVYISQFSYKELYVSSSYKD
INESMSQMVKL"
<pre>
        gene   complement(43715..44833)
                            /gene="VACA2K059"
        CDS   complement(43715..44833)
                            /gene="VACA2K059"
                            /function="palmytilated EEV membrane protein:
                            phospholipase motif, required for IEV formation"
                            /note="similar to VACWR052, VACCP-F13L"
                            /codon_start=1
</pre>

/translation="MWPFASVPAGAKCRLVETLPENMDFRSDHLTTFECFNEIITLAK
KYIYIASFCCNPLSTTRGALIFDKLKEASEKGIKIIVLLDERGKRNLGELQSHCPDIN
FITVNIDKKNNVGLLLGCFWVSDDERCYVGNASFTGGSIHTIKTLGVYSDYPPLATDL
RRRFDTFKAFNSAKNSWLNLCSAACCLPVSTAYHIKNPIGGVFFTDSPEHLLGYSRDL
DTDVVIDKLRSAKTSIDIEHLAIVPTTRVDGNSYYWPDIYNSIIEAAINRGVKIRLLV
GNWDKNDVYSMATARSLDALCVQNDLSVKVFTIQNNTKLLIVDDEYVHITSANFDGTH
YQNHGFVSFNSIDKQLVSEAKKIFERDWVSSHSKSLKI"
<pre>
        gene   complement(44851..45072)
                            /gene="VACA2K060"
        CDS   complement(44851..45072)
                            /gene="VACA2K060"
                            /function="unknown"
                            /note="similar to VACWR053, VACCP-F14L"
                            /codon_start=1
</pre>

/translation="MKHRLYSEGLSISNDLNSIIGQQSTMDTDIEINEDDIMELLNIL
TELGCDVDFDENFSDIADDILESLIEQDV"
<pre>
        gene   complement(45344..45820)
                            /gene="VACA2K061"
        CDS   complement(45344..45820)
                            /gene="VACA2K061"
                            /function="unknown"
                            /note="similar to VACWR054, VACCP-F15L"
</pre>

/codon_start=1

/translation="MRSIAGLHKLKMEIFNVEELINMKPFKNMNKITINQKDNCILAN
RCFVKIDTPRYIPSTSISSSNIIRIRNHDFTLSELLYSPFHFQQPQFQYLLPGFVLTC
IDKVSKQQKKCKYCISNRGNDDSLSINLFIPTINKSIYIIIGLRMKNFWKPKFEIE"
```
        gene              complement(45827..46522)
                          /gene="VACA2K062"
        CDS               complement(45827..46522)
                          /gene="VACA2K062"
                          /function="unknown"
                          /note="similar to VACWR055, VACCP-F16L"
                          /codon_start=1
```

/translation="MKVVIVTSVASLLDASIQFQKTACRHHCNYLSMQVVKEIEEFGT
INEKNLEFDTWKDVIQNDEIDALVFYRVKQISISTGVLYKSMMRNRTKPISMYFVRDC
LAFDGDPPSFRMTSCNINAYNRSKIKDLIILMNMKTCNKKIIGEFIIDNFGSVDALLS
IINSNVTWVTSVINNSNGRGINIRVSNNKMLTITSFRRFVNKLKMYKTTKCASQLDNL
CTEMNKMDIIDKK"
```
        gene              46585..46890
                          /gene="VACA2K063"
        CDS               46585..46890
                          /gene="VACA2K063"
                          /function="putative DNA-binding phosphoprotein in
virus
                          core"
                          /note="similar to VACWR056, VACCP-F17R"
                          /codon_start=1
```

/translation="MNSHFASAHTPFYINTKEGRYLVLKAVKVCDVRTVECEGSKASC
VLKVDKPSSPACERRPSSPSRCERMNNPGKQVPFMRTDMLQNMFAANRDNVASRLLN"
```
        gene              complement(46887..48326)
                          /gene="VACA2K064"
        CDS               complement(46887..48326)
                          /gene="VACA2K064"
                          /function="poly-A polymerase catalytic subunit
VP55"
                          /note="similar to VACWR057, VACCP-E1L"
                          /codon_start=1
```

/translation="MNRNPDQNTFPNITLKIIETYLGRVPSVNEYHMLKLQARNIQKI
TVFNKDIFVSLVKKNKKRFFSDVDTSASEIKDRILSYFSKQTQTYNIGKLFTIIELQS
VLVTTYTDILGVLTIKAPNVISSKISYNVTSMEELARDMLNSMNVAVIDKAKVMGRHN
VSSLVKNVNKLMEEYLRRHNKSCICYGSYSLYLINPNILYGDIDILQTNSRTFLIDLA
FLIKFITGNNIILSKIPYLRNYMVIKDENDNHIIDSFNIRQDTMNVVPKIFIDNIYIV
DPTFQLLNMIKMFSQIDRLEDLSKDPEKFNARMATMLEYVRYTHGIVFDGKRNNMPMK
CIIDENNRIVTVTTKDYFSFKKCLVYLDENVLSSDILDLNADTSCDFESVTNSVYLIH
DNIMYTYFSNTILLSDKGKVHEISARGLCAHILLYQMLTSGEYKQCLSDLLNSMMNRD
KIPIYSHTERDKKPGRHGFINIEKDIIVF"
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        gene              complement(48323..50536)
                          /gene="VACA2K065"
        CDS               complement(48323..50536)
                          /gene="VACA2K065"
                          /function="unknown"
                          /note="similar to VACWR058, VACCP-E2L"
                          /codon_start=1
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/translation="MISVTDIRRAFLDNECHTITKAFGYLHEDNAIALIKIGFHPTYL

PKVLYNNVVEFVPEKLYLFKPRTVAPLDLISTITKLKNVDKFASHINYHKNSILITGD
KSLIVKCMPYMIISDDDIRFIREQFVGTNSIEYILSFINKESIYKMSYQFSENEIVTI
INRDHFMYEPIYEHQVLDSDFLKTMLDRYGIVPINSGIIDELCPEAIIEILMAVVRPR
DAIRFLDIVNKNQLTEDSVKNYIINDIRRGKIDYYIPYVEDFLEDRTEDLGIYANIFF
EDAIDITKLDITKTELEHISKYMNYYTTYIDHIVNIILQNNYIDILASIIDYVQDVLT
EELCIRIVCESTNPVPVTSLPIHSTLVMVMCIQMKYVDIVEFLDEIDIDTLIEKGADP
ITEYTFTTRWYNKHNDLITLYIKKYGFCPMMMKRLMFEYPLTKEASDHLLKTMDENRG
AIMFFPRTICTLPYLLCCNYKLIQKPIPFKEENRNIVYKKNNRVLCFDSLENSAFKSL
IKIDSIPGLKTYNMKDITYEKSNNIICVRFIPQESIHNEERRIKLQLFDIARLASYGL
YYIPSRYLSSWTPVVNMIEGREYTNPQKIECLVILDLFSEEFIEYQNLGNAVSNKYEL
EYTISNYQAAINCLMSTLLIYLVLGSIRSISKTEDFVLSILNIFYKGLKINELLSEPV
SGVCIELDKIKDRASSGDSSFIFLKKNELSKTLSLCEKVCVETILDNNQSFKSSK"
     gene   complement(50637..51209)
               /gene="VACA2K066"
     CDS   complement(50637..51209)
               /gene="VACA2K066"
               /function="double-stranded RNA binding protein:
inhibits
               antiviral activities of interferon: host-range
               determinant: host defense modulator"
               /note="similar to VACWR059, VACCP-E3L"
               /codon_start=1

/translation="MSKIYIDERSDAEIVCAAIKNIGIEGATAAQLTRQLNMEKREVN
KALYDLQRSAMVYSSDDIPPRWFMTTEADKPDADVMADAIIDDVSREKSMREDHKSFD
DVIPAKKIIDWKDANPVTIINEYCQITKRDWSFRIESVGPSNSPTFYACVDIDGRVFD
KADGKSKRDAKNNAAKLAVDKLLGYVIIRF"
     gene   complement(51265..52044)
               /gene="VACA2K067"
     CDS   complement(51265..52044)
               /gene="VACA2K067"
               /function="DNA-dependent RNA polymerase subunit
rpo30,
               intermediate-gene transcription factor VITF1:
TFIIS-like"
               /note="similar to VACWR060, VACCP-E4L"
               /codon_start=1

/translation="MENVYISSYSSNEQTSMAVAATDIRELLSQYVDDANLEDLIEWA
MEKSSKYYIKNIGNTKSNIEETKFESKNNIGIEYSKDSRNKLSYRNKPSIATNLEYKT
LCDMIKGTSGTEKEFLRYLLFGIKCIKKGVEYNIDKIKDVSYNDYFNVLDEKYNTPCP
NCKSRNTTPMMIQTRAADEPPLVRHACRDCKQHFKPPKFRAFRNLNVTTQSIHENKEI
TEILPDNNPSPPESPEPASPIDDGLIRSTFDRNDEPPEDDE"
     gene   52121..52690
               /gene="VACA2K068"
     CDS   52121..52690
               /gene="VACA2K068"
               /function="gene fragment, abundant component of
virosome"
               /note="similar to VACWR061, VACCP-E5R"
               /codon_start=1

/translation="MLIIVLWLYGYNFIMSGSQCPMINDDSFTLKRKYQIDSAESTMK
MDKKRTKFQNRAKMVKEINQTIRAAQTHYETLKLGYIKFKRMIMTTTLEDIAPSIPNN
QKTYKLFSDISAIGKASRNPSKMVYALLLYMFPNLFGDDHRFIRYRMHPMSKIKHKIF
SPFKLNLIRILVEERFYNNECRSNKWNTS"
     gene   52656..53105

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                           /gene="VACA2K069"
          CDS              52656..53105
                           /gene="VACA2K069"
                           /function="gene fragment, abundant component of
virosome"
                           /note="similar to VACWR061, VACCP-E5R"
                           /codon_start=1

/translation="MNADLINGTQVDKMLIAESDKYTIDARYNLKPMYRIKGESEEDT
LFIKQMVEQCVTSQELVEKVLKILFRDLFKSGEYKAYRYDDDVENGFIGLDTLKLNIV
HDIVEPCMPVRRPVAKILCKEMVNKYFENPLHIIGKNLQECIDFVSE"
          gene             53242..54945
                           /gene="VACA2K070"
          CDS              53242..54945
                           /gene="VACA2K070"
                           /function="unknown"
                           /note="similar to VACWR062, VACCP-E6R"
                           /codon_start=1

/translation="MDFIRRKYLIYTVENNIDFLKDDTLSKVNNFTLNHVLALKYLVS
NFPQHVITKDVLANTNFFVFIHMVRCCKVYEAVLRHAFDAPTLYVKALTKNYLSFSNA
IQSYKETVHKLTQDEKFLEVAEYMDELGELIGVNYDLVLNPLFHGGEPIKDMEIIFLK
LFKKTDFKVVKKLSVIRLLIWAYLSKKDTGIEFADNDRQDIYTLFQQTGRIVHSNLTE
TFRDYIFPGDKTSYWVWLNESIANDADIVLNRHAITMYDKILSYIYSEIKQGRVNKNM
LKLVYIFEPEKDIRELLLEIIYDIPGDILSIIDAKNDDWKKYFISFYKANFINGNTFI
SDKTFNEDLFRVVVQINPEYFDNERIMSLFSTSAADIKRFDELDINNSYISNIIYEVN
DITLDTMDDMKKCQIFNEDTSYYVKEYNTYLFLHESDPMVIENGILKKLSSIKSKSRR
LNLFSKNILKYYLDGQLARLGLVLDDYKGDLLVKMINHLKSVEDVSAFVRFSTDKNPS
ILPSLIKTILASYNISIIVLFQRFLRDNLYHVEEFLDKSIHLTKTDKKYILQLIRHGR
S"
          gene             55027..55527
                           /gene="VACA2K071"
          CDS              55027..55527
                           /gene="VACA2K071"
                           /function="soluble, myristylprotein has
                           N-myristyltransferase target MGxxxS/T/A"
                           /note="similar to VACWR063, VACCP-E7R"
                           /codon_start=1

/translation="MGTAATIQTPTKLMNKENAEMILEKIVDHIVMYISDESSDSENN
PEYIDFRNRYEDYRSLIIKSDHEFVKLCKNHAEKSSPETQQMIIKHIYEQYLIPVSEV
LLKPIMSMGDIITYNGCKDNEWMLEQLSTLNFNNLRTWNSCSIGNVTRLFYTFFSYLM
                           KDKLNI"
          gene             55652..56473
                           /gene="VACA2K072"
          CDS              55652..56473
                           /gene="VACA2K072"
                           /function="membrane protein may help wrap
virosome:
                           associates with IV/IMV and cores: F10L kinase
substrate"
                           /note="similar to VACWR064, VACCP-E8R"
                           /codon_start=1

/translation="MAATVPRFDDVYKNAQRRILDQETFFSRGLSRPLMKNTYLFDNY
AYGWIPETAIWSSRYANLDASDYYPISLGLLKKFEFLMSLYKGPIPVYEEKVNTEFIA
NGSFSGRYVSYLRKFSALPTNEFISFLLLTSIPIYNILFWFKNTQFDITKHTLFRYVY
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17

TDNAKHLALARYMHQTGDYKPLFSRLKENYIFTGPVPIGIKDIDHPNLSRARSPSDYE
TLANISTILYFTKYDPVLMFLLFYVPGYSITTKITPAVEYLMDKLNLTKSDVQLL"
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                        /gene="VACA2K073"
        CDS             complement(56480..59497)
                        /gene="VACA2K073"
                        /function="DNA polymerase"
                        /note="similar to VACWR065, VACCP-E9L"
                        /codon_start=1
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/translation="MDVRCINWFESHGENRFLYLKSRCRNGETVFIRFPHYFYYVVTD
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SYLFLDIECHFDKKFPSVFINPISHTSYCYIDLSGKRLLFTLINEEMLTEQEIQEAVD
RGCLRIQSLMEMDYERELVLCSEIVLLRIAKQLLELTFDYVVTFNGHNFDLRYITNRL
ELLTGEKIIFRSPDKKEAVHLCIYERNQSSHKGVGGMANTTFHVNNNNGTIFFDLYSF
IQKSEKLDSYKLDSISKNAFSCMGKVLNRGVREMTFIGDDTTDAKGKAAAFAKVLTTG
NYVTVDEDIICKVIRKDIWENGFKVVLLCPTLPNDTYKLSFGKDDVDLAQMYKDYNLN
IALDMARYCIHDACLCQYLWEYYGVETKTDAGASTYVLPQSMVFEYRASTVIKGPLLK
LLLETKTILVRSETKQKFPYEGGKVFAPKQKMFSNNVLIFDYNSLYPNVCIFGNLSPE
TLVGVVVSTNRLEEEINNQLLLQKYPPPRYITVHCEPRLPNLISEIAIFDRSIEGTIP
RLLRTFLAERARYKKMLKQATSSTEKAIYDSMQYTYKIVANSVYGLMGFRNSALYSYA
SAKSCTSIGRRMILYLESVLNGAELSNGMLRFANPLSNPFYMDDRDINPIVKTSLPID
YRFRFRSVYGDTDSVFTEIDSQDVDKSIEIAKELERLINNRVLFNNFKIEFEAVYKNL
IMQSKKKYTTMKYSASSNSKSVPERINKGTSETRRDVSKFHKNMIKMYKTRLSEMLSE
GRMNSNQVCIDILRSLETDLRSEFDSRSSPLELFMLSRMHHSNYKSADNPNMYLVTEY
NKNNPETIELGERYYFAYICPNGPWTKKLVNIKTYETIIDRSFKLGSDQRIFYEVYFK
RLTSEIVNLLDNKVLCISFFERMFGSKPTFYEA"
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        gene            59529..59816
                        /gene="VACA2K074"
        CDS             59529..59816
                        /gene="VACA2K074"
                        /function="S-S bond formation pathway: sulfhydryl
oxidase,
                        substrates L1R/F9L"
                        /note="similar to VACWR066, VACCP-E10R"
                        /codon_start=1
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/translation="MNPKHWGRAVWTIIFIVLSQAGLDGNIEACKRKLYTIVSTLPCP
ACRRHATIAIEDNNVMSSDDLNYIYYFFIRLFNNLASDPKYAINVSKVNPL"
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        gene            complement(59811..60200)
                        /gene="VACA2K075"
        CDS             complement(59811..60200)
                        /gene="VACA2K075"
                        /function="virion core protein"
                        /note="similar to VACWR067, VACCP-E11L"
                        /codon_start=1
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/translation="MELVNIFLETDAGRVKFAIKNTDDVCASELINKFVELLSEYIHI
DQSEFYLVVKDKDIFYFKCDRGSISIVNNEFYVFDEPLLFVKDFTNVTGVEFIVTETM
PCRIIPKNNHAVISVVTNHKFYNGLSL"
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        gene            complement(60187..62187)
                        /gene="VACA2K076"
        CDS             complement(60187..62187)
                        /gene="VACA2K076"
                        /function="unknown"
                        /note="similar to VACWR068, VACCP-O1L"
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/translation="MFMYPEFARKALSKLISKKLNIEKVSSKHQLVLLDYGLHGLLPK
SLYLEAINSDILNVRFFPPEIINVTDIVKALQNSCRVDEYLKAVSLYHKNSLMVLGPN
VVKLMIEYNLLTHSDLEWLINENVVKATYLLKINAYMINFKIDLTVDEIIDLVKDIPV
GATLHLYNILNNIDLDIVLRISDEYNIPPVHDILSKLTDEEMCIKLVTKYPMDNVINF
INQDVRYSPTFIKTIKDFVNKHLPTMYDGLNDYLHSVIIDEDLIEEYKIKSVAMFNLE
YKTDVDTLTLDEQIFVEVNISYYDFRYRQFADEFRDYIMIKERRQITMQSGDRIRRFR
RPMSLRSTIIKKDTDSLEDILAHIDNARKNSKVSIEDVERIISSFRLNPCVVRRTMLS
DIDIKTKIMVLKIVKDWKSCALTLSAIKGIMVTDTINTVLSKILHHHRNVFKYLTSVE
NKEIAVCNCSRCLSLFYRELKSVRCDLRTDDGLLDRLYDLTRYALHGKINQNLIGQRC
WGPLTEMLFNENKKKKLNNLMEYIKISDMLVYGHSIEKTLIPITDSLSFKLSVDTMSV
LNDQYAKVVIFFNTIIEYIIATIYYRLTVLDNYTNVKHFVSKVLHTVMEACGVLFSYI
KVNDKIEHELEEMVDKGTVPSYLYHLSINVISIILDDINGTR"

gene	complement(62227..62553)	
	/gene="VACA2K077"	
CDS	complement(62227..62553)	
	/gene="VACA2K077"	
	/function="nonessential glutaredoxin: not part of	

E10R-G4L

S-S bond formation pathway"
/note="similar to VACWR069, VACCP-O2L"
/codon_start=1

/translation="MAEEFVQQRLANNKVTIFVKYTCPFCRNALDILNKFSFKRGAYE
IVDIKEFKPENELRDYFEQITGGRTVPRIFFGKTSIGGYSDLLEIDNMDALGDILSSI
GVLRTC"

gene	complement(62699..63637)	
	/gene="VACA2K078"	
CDS	complement(62699..63637)	
	/gene="VACA2K078"	
	/function="DNA-binding core protein"	
	/note="similar to VACWR070, VACCP-I1L"	
	/codon_start=1	

/translation="MAEFEDQLVFNSISARALKAYFTAKINEMVDELVTRKCPQKKKS
QAKKPEVRIPVDLVKSSFVKKFGLCNYGGILISLINSLVENNFFTKDGKLDDTGKKEL
VLTDVEKRILNAIDKSSPLYIDISDVKVLAARLKRSATQFNFNGHTYHLENDKIEDLI
NQLVKDESIQLDEKSSIKDSMYVIPDELIDVLKTRLFRSPQVKDNIISRTRLYDYFTR
VTKRDESSIYVILKDPRIASILSLETVKMGAFMYTKHSMLTNAISSRVDRYSKKFQES
FYEDIAEFVKENERVNVSRVVECLTVPNITISSNAE"

gene	complement(63644..63865)	
	/gene="VACA2K079"	
CDS	complement(63644..63865)	
	/gene="VACA2K079"	
	/function="unknown"	
	/note="similar to VACWR071, VACCP-I2L"	
	/codon_start=1	

/translation="MDKLYAAIFGVYMGSPKDDLTDFIEIVKSVLSDEKTTTSTNNTG
CWGWYWLIIIFFIVLILLLLIYLYLKVVW"

gene	complement(63866..64675)	
	/gene="VACA2K080"	
CDS	complement(63866..64675)	
	/gene="VACA2K080"	
	/function="ssDNA-binding phosphoprotein"	
	/note="similar to VACWR072, VACCP-I3L"	

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                              /codon_start=1

/translation="MSKVIKKRVETSPRPTASSDSLQTCAGVIEYAKSISKSNAKCIE
YVTLNASQYANCSSISIKLTDSLSSQMTSTFIMLEGETKLYKNKSKQDRSDGYFLKIK
VTAASPMLYQLLEAVYGNIKHKERIPNSLHSLSVETITEKTFKDESIFINKLNGSMVE
YVSTGESSILRSIEGELESLSKRERQLAKAIITPVVFYRSGTETKITFALKKLIIDRE
VVANVIGLSGDSERVSMTENVEEDLARNLGLVDIDDEYDEDSDKEKPIFNV"
        gene                  complement(64758..67073)
                              /gene="VACA2K081"
        CDS                   complement(64758..67073)
                              /gene="VACA2K081"
                              /function="ribonucleotide reductase large subunit"
                              /note="similar to VACWR073, VACCP-I4L"
                              /codon_start=1

/translation="MFVIKRNGYKENVMFDKITSRIRKLCYGLNTDHIDPIKIAMKVI
QGIYNGVTTVELDTLAAEIAATCTTQHPDYAILAARIAVSNLHKETKKLFSEVMEDLF
NYVNPKNGKHSPIISSITMDIVNKYKDKLNSVIIYERDFSYNYFGFKTLEKSYLLKIN
NKIVERPQHMLMRVAVGIHQWDIDSAIETYNLLSEKWFTHASPTLFNAGTSRHQMSSC
FLLNMIDDSIEGIYDTLKRCALISKMAGGIGLSISNIRASGSYISGTNGISNGIIPML
RVYNNTARYIDQGGNKRPGVMAIYLEPWHSDIMAFLDLKKNTGNEEHRTRDLFIALWI
PDLFMKRVKDDGEWSLMCPDECPGLDNVWGDEFERLYTLYERERRYKSIIKARVVWKA
IIESQIETGTPFILYKDACNKKSNQQNLGTIKCSNLCTEIIQYADANEVAVCNLASVA
LNMFVIDGRFDFLKLKDVVKVIVRNLNKIIDINYYPIPEAEISNKRHRPIGIGVQGLA
DAFILLNYPFDSLEAQDLNKKIFETIYYGALEASCELAEKEGPYDTYVGSYASNGILQ
YDLWNVVPSDLWNWEPLKDKIRTYGLRNSLLVAPMPTASTAQILGNNESVEPYTSNIY
TRRVLSGEFQVVNPHLLRVLTERKLWNDEIKNRIMADGGSIQNTNLPEDIKRVYKTIW
EIPQKTIIKMAADRGAFIDQSQSMNIHIADPSYSKLTSMHFYGWSLGLKTGMYYLRTK
PASAPIQFTLDKDKIKPLVVCDSEICTSCSG"
        gene                  complement(67100..67339)
                              /gene="VACA2K082"
        CDS                   complement(67100..67339)
                              /gene="VACA2K082"
                              /function="IMV protein VP13"
                              /note="similar to VACWR074, VACCP-I5L"
                              /codon_start=1

/translation="MVDAITVLTAIGITVLMLLMVISGAAMIVKELNPNDIFTMQSLK
FNRAVTIFKYIGLFIYIPGTIILYATYVKSLLMKS"
        gene                  complement(67358..68506)
                              /gene="VACA2K083"
        CDS                   complement(67358..68506)
                              /gene="VACA2K083"
                              /function="unknown"
                              /note="similar to VACWR075, VACCP-I6L"
                              /codon_start=1

/translation="MNNFVKQVASKSLKPTKKLSPSDEVISLNECIISFNLDNFYYCN
DVLFTKPINTPEDVLKSLLIMESFAYEKMIIKGLIKILIFRAYINDIYFTPFGWLTGV
DDDPETHVVIKIIFNSSLISIKSQVIEYLKPYNVNNLSVLTTEKELSINTFNVPDSIP
MSIISFFPFDTDFILVILFFGVYNDSYCGISYISPKERLPYIIEILKPLVSEINMLSD
EIGRTSSIRIFNSTSVKKFPTNTLTSICEIVYSFDESSFPTPKTFTPLNASPYIPKKI
VSLLDLPSNVEIKAISRGGVDFITHINNKRLNTILVIAKDNFLKNSTFSGTFIKENII
WKGIYTYRIIKSSFPVPTIKSVTNKKKICKKHCFVNSQYTTRTLSHIL"
        gene                  complement(68499..69770)
                              /gene="VACA2K084"
        CDS                   complement(68499..69770)
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                              /gene="VACA2K084"
                              /function="viral core cysteine proteinase"
                              /note="similar to VACWR076, VACCP-I7L"
                              /codon_start=1

/translation="MERYTDLVISKIPELGFTNLLCHIYSLAGLCSNIDVSKFLTNCN
GYVVEKYDKSTTAGKVSCIPIGMMLELVESGHLSRPNSSDELDQKKELTDELKTRYHS
IYDVFELPTSIPLAYFFKPRLREKVSKAIDFSQMDLKIDDLSRKGIHTGENPKVVKMK
IEPERGAWMSNRSIKNLVSQFAYGSEVDYIGQFDMRFLNSLAIHEKFDAFMNKHILSY
ILKDKIKSSTSRFVMFGFCYLSHWKCVIYDKKQCLVSFYDSGGNIPTEFHHYNNFYFY
SFSDGFNTNHRHSVLDNTNCDIDVLFRFFECTFGAKIGCINVEVNQLLESECGMFISL
FMILCTRTPPKSFKSLKKVYTFFKFLADKKMTLFKSILFNLHDLSLDITETDNAGLKE
YKRMEKWTKKSINVICDKLTTKLNRIVNDDE"
      gene                    69776..71806
                              /gene="VACA2K085"
      CDS                     69776..71806
                              /gene="VACA2K085"
                              /function="RNA-helicase, DExH-NPH-II: DNA-helicase
aided
                              by L4R"
                              /note="similar to VACWR077, VACCP-I8R"
                              /codon_start=1

/translation="MEKNLPDIFFFPNCVNVFSYKYSQDEFSNMSKTERDSFSLAVFP
VIKHRWHNAHVVKHKGIYKVSTEARGKKVSPPSLGKPAHINLTTKQYIYSEHTISFEC
YSFLKCITNTEINSFDEYILRGLLEAGNSLQIFSNSVGKRTDTIGVLGNKYPFSKIPL
ASLTPKAQREIFLAWISHRPVVLTGGTGVGKTSQVPKLLLWFNYLFGGFSTLDKITDF
HERPVILSLPRIALVRLHSNTILKSLGFKVLDGSPISLRYGSIPEELINKQPKKYGIV
FSTHKLSLTKLFSYGTLIIDEVHEHDQIGDIIIAVARKHHTKIDSMFLMTATLEDDRE
RLKVFLPNPAFIHIPGDTLFKISEVFIHNKINPSSRMAYIEEEKRNLVTAIQMYTPPD
GSSGIVFVASVAQCHEYKSYLEKRLPYDMYIIHGKVLDIDEILEKVYSSPNVSIIIST
PYLESSVTIHNVTHIYDMGRVFVPAPFGGSQQFISKSMRDQRKGRVGRVNPGTYVYFY
DLSYMKSIQRIDSEFLHNYILYANKFNLTLPEDLFIIPTNLDILWRTKEYIDSFDIST
ETWNKLLSNYYMKMIEYAKLYVLSPILAEELDNFERTGELTSIVQEAILSLNLRIKIL
NFKHKDDDTYIHFCKILFGVYNGTNATIYYHRPLTGYMNMISDTIFVPVDNN"
      gene                    complement(71810..73585)
                              /gene="VACA2K086"
      CDS                     complement(71810..73585)
                              /gene="VACA2K086"
                              /function="insulin metalloproteinase-like has ENE
and
                              HLLEH inverse of HXXEX sites"
                              /note="similar to VACWR078, VACCP-G1L"
                              /codon_start=1

/translation="MIVLPNKVRIFINDRMKKDIYLGISNFGFENDIDEILGIAHLLE
HLLISFDSTNFLANASTSRSYMSFWCKSINSATESDAIRTLVSWFFSNGKLKDNFSLS
SIRFHIKELENEYYFRNEVFHCMDILTFLSGGDLYNGGRIDMIDNLNIVRDMLVNRMQ
RISGSNIVIFVKRLGPGTLDFFKQTFGSLPACPEIIPSSIPVSTNGKIVMTPSPFYTV
MVKINPTLDNILGILYLYETYHLIDYETIGNQLYLTVSFIDETEYESFLRGEAILQIS
QCQRINMNYSDDYMMNIYLNFPWLSHDLYDYITRINDDSKSILISLTNEIYASIINRD
IIVIYPNFSKAMCNTRDTQQHPIVVLDATNDGLIKKPYRSIPLMKRLTSNEIFIRYGD
ASLMDMITLSLSKQDISLKRNAEGIRVKHSFSADDIQAIMESDSFLKYSRSKPAAMYQ
YIFLSFFASGNSIDDILANRDSTLEFSKRTKSKILFGRNTRYDVTAKSSFVCGIVRGK
SLDKTSLVEMMWDLKKKGLIYSMEFTNLLSKNTFYLFTFTIYTDEVYDYLNTNKLFSA
KCLVVSTKGDVENFSSLKKDVVIRV"
      gene                    complement(73582..73917)
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                            /gene="VACA2K087"
          CDS               complement(73582..73917)
                            /gene="VACA2K087"
                            /function="unknown"
                            /note="similar to VACWR079, VACCP-G3L"
                            /codon_start=1

/translation="MASLLYLILFLLFVCISYYFTYYPTNKLQAAVMETDRENAIIRQ
RNDEIPTRTLDTAIFTDASTVASAQIHLYYNSNIGKIIMSLNGKKHTFNLYDDNDIRT
LLPILLLSK"
          gene              73911..74573
                            /gene="VACA2K088"
          CDS               73911..74573
                            /gene="VACA2K088"
                            /function="late transcription elongation factor"
                            /note="similar to VACWR080, VACCP-G2R"
                            /codon_start=1

/translation="MPFRDLILFNLSKFLLTEDEESLEIVSSLCRGFEISYDDLITYF
PDRKYHKYIYKVFEHVDLSEELSMEFHDTTLRDLVYLRLYKYSKCIRPCYKLGDNLKG
IVVIKDRNIYIREANDDLIEYLLKEYTPQIYTYSNERVPIAGSKLILCGFSQVTFMAY
TTSHITTNKKVDVLVSKKCIDELVDPINYQILQNLFDKGSGTINKILRKIFYSVTGGQ
TP"
          gene              complement(74543..74917)
                            /gene="VACA2K089"
          CDS               complement(74543..74917)
                            /gene="VACA2K089"
                            /function="S-S bond formation pathway:
thioredoxin-like"
                            /note="similar to VACWR081, VACCP-G4L"
                            /codon_start=1

/translation="MKNVLIIFGKPYCSICENVSESVEELKSEYDILHVDILSFFLKD
GDSSMLGDVKRGTLIGNFAAHLSNYIVSIFKYNPQTKQMAFVDINKSLDFTKTDKSLV
NLEILKSEIEKATYGVWPPVTE"
          gene              74920..76224
                            /gene="VACA2K090"
          CDS               74920..76224
                            /gene="VACA2K090"
                            /function="unknown"
                            /note="similar to VACWR082, VACCP-G5R"
                            /codon_start=1

/translation="MGIKNLKSLLLENKSLTILDDNLYKVYNGIFVDTMSIYIAVANC
VRNLEELTTVFIKYVNGWVKKGGHVTLFIDRGSIKIKQDVRDKRRKYSKLTKDRKMLE
LEKCTSEIQNVTGFMEEEIKAKMQLKIDKLTFQIYLSDSDNIKISLNEILTHFNNNEN
VTLFYCDERDAEFVMCLEAKTHFSTTGEWPLIISTDQDTMLFASADNHPKMIKNLTQL
FKYVPSAEDNYLAKLTALVNGCDFFPGLYGASITPNNLNKIQLFSDFTIDNIVTSLAI
KNYYRKTNSTVDVRNIVTFINDYANLDDVYSYVPPCQCTVQEFIFSALDEKWNNFKSS
YLETVPLPCQLMYALEPRKEIDVSEVKTLSSYIDFENTKSDIDVIKSISSIFGYSNEN
CNTIVFGIYKDNLLLSINSSFYFNDSLLITNTKSDNIINIGY"
          gene              76232..76423
                            /gene="VACA2K091"
          CDS               76232..76423
                            /gene="VACA2K091"
                            /function="DNA-dependent RNA polymerase subunit
rpo7"
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                              /note="similar to VACWR083, VACCP-G5.5R"
                              /codon_start=1

/translation="MVFQLVCSTCGKDISHERYKLIIRKKSLKDVLVSVKNECCRLKL
STQIEPQRNLTVQPLLDIN"
          gene              76425..76922
                              /gene="VACA2K092"
          CDS               76425..76922
                              /gene="VACA2K092"
                              /function="unknown"
                              /note="similar to VACWR084, VACCP-G6R"
                              /codon_start=1

/translation="MDPVNFIKTYAPRGSIIFINYTMSLTSHLNPSIEKHVGIYYGTL
LSEHLVVESTYRKGVRIVPLDSFFEGYLSAKVYMLENIQVMKIAANTSLTLLGIPYGF
GHNRMYCFKLVAECYKNAGIDTSSKRILGKDIFLSQNFTDDNRWIKIYDSNNLTFWQI
DYLKG"
          gene              complement(76887..78002)
                              /gene="VACA2K093"
          CDS               complement(76887..78002)
                              /gene="VACA2K093"
                              /function="virion structural protein"
                              /note="similar to VACWR085, VACCP-G7L"
                              /codon_start=1

/translation="MAAEQRRSTIFDIVSKCIVQSVLRDISINSEYIESKAKQLCYCP
ASKKESVINGIYNCCESNIEIMDKEQLLKILDNLRCHSAHVCNATDFWRLYNSLKRFT
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EMKYALINLVQYRILPMIIGEPIIVAGFSGKEPISDYSAEVERLMELPVKTDIVNTTY
DFLARKGIDTSNNIAEYIAGLKIEEIEKVEKYLPEVISTIANSNIIKNKKSIFPANIN
DKQIMECSRMLDTSEKYSKGYKTDGAVTSPLTGNNTITTFIPISASDMQKFTILEYLY
IMRVMANNVKKKNEGKNNGGVVMHINSPFKVINLPKC"
          gene              78033..78815
                              /gene="VACA2K094"
          CDS               78033..78815
                              /gene="VACA2K094"
                              /function="late gene transcription VLTF-1"
                              /note="similar to VACWR086, VACCP-G8R"
                              /codon_start=1

/translation="MSIRIKIDKLRQIVAYFSEFSEEVSINVDSTDELMYIFAALGGS
VNIWAIIPLSASVFYRGAENIVFNLPVSKVKSCLCSFHNDAIIDIEPDLKNNLVKLSS
YHVVSVDCNKELMPIRTDTTICLSIDQKKSYVFNFHKYEEKCCGRTVIHLEWLLGFIK
CISQHQHLAIMFKDDNIIMKTPGNTDAFSREYSMTECSQELQKFSFKIAISSLNKLRG
FKKRVNVFETRIVMDNDDNILGMLFSDRVQSFKINIFMAFLD"
          gene              78835..79857
                              /gene="VACA2K095"
          CDS               78835..79857
                              /gene="VACA2K095"
                              /function="myristylprotein"
                              /note="similar to VACWR087, VACCP-G9R"
                              /codon_start=1

/translation="MGGGVSVELPKRDPPPGVPTDEMLLNVDKMHDVIAPAKLLEYVH
IGPLAKDKEDKVKKRYPEFRLVNTGPGGLSALLRQSYNGTAPNCCRTFNRTHYWKKDG
KISDKYEEGAVLESCWPDVHDTGKCDVDLFDWCQGDTFDRNICHQWIGSAFNRSDRTV
EGQQSLINLYNKMQTLCSKDASVPICESFLHHLRAHNTEDSKEMIDYILRQQSADFKQ
```

KYMRCSYPTRDKLEESLKYAEPRECWDPECSNANVNFLLTRNYNNLGLCNIVRCNTSV
NNLQMDKTSSLRLSCGLSNSDRFSTVPVNRAKVVQHNIKHSFDLKLHLISLLSLLVIW
ILIVAI"
```
        gene                79858..80610
                            /gene="VACA2K096"
        CDS                 79858..80610
                            /gene="VACA2K096"
                            /function="IMV membrane protein target of
neutralizing
                            antibody: S-S bond formation pathway thiol
substrate:
                            myristylprotein"
                            /note="similar to VACWR088, VACCP-L1R"
                            /codon_start=1
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/translation="MGAAASIQTTVNTLSERISSKLEQEANASAQTKCDIEIGNFYIR
QNHGCNLTVKNMCSADADAQLDAVLSAATETYSGLTPEQKAYVPAMFTAALNIQTSVN
TVVRDFENYVKQTCNSSAVVDNKLKIQNVIIDECYGAPGSPTNLEFINTGSSKGNCAI
KALMQLTTKATTQIAPRQVAGTGVQFYMIVIGVIILAALFMYYAKRMLFTSTNDKIKL
ILANKENVHWTTYMDTFFRTSPMVIATTDMQN"
```
        gene                80642..80899
                            /gene="VACA2K097"
        CDS                 80642..80899
                            /gene="VACA2K097"
                            /function="unknown"
                            /note="similar to VACWR089, VACCP-L2R"
                            /codon_start=1
```
/translation="MEVIADRLDDIVKQNIADEKFVDFVIHGLEHQCPAILRPLIRLF
IDILLFVIVIYIFTVRLVSRNYQMLLVVLVITLTIFYYFIL"
```
        gene                complement(80889..81941)
                            /gene="VACA2K098"
        CDS                 complement(80889..81941)
                            /gene="VACA2K098"
                            /function="unknown"
                            /note="similar to VACWR090, VACCP-L3L"
                            /codon_start=1
```
/translation="MNTRTDVTNDNIDKNPTKRGDRNIPGRNERFNDQNRFNNDIPKP
KPRLQPNQPPKQDNKCREENGDFINIRLCAYEKEYCNDGYLSPAYYMLKQVDDEEMSC
WSELSSLVRSRKAVGFPLLKAAKRISHGSMLYFEQFKNSKVVKLTPQVKCLNDTVIFQ
TVVILYSMYKRGIYSNEFCFNLVSIPRTNIVFSVNQLMFNICTDILVVLSICGNRLYR
TNLPQSCYLNFIHGHETIARRGYEHSNYFFEWLIKNHISLLTKQTMDILKVKKKYATG
APVNRLLEPGTLVYVPKEDYYFIGISLTDVSISDNVRVLFSTDGIVLEIEDFNIKHLF
MAGEMFVRSQSSTIIV"
```
        gene                81966..82721
                            /gene="VACA2K099"
        CDS                 81966..82721
                            /gene="VACA2K099"
                            /function="core protein vp8: microtubule-
associated,
                            ssRNA/ssDNA-binding protein"
                            /note="similar to VACWR091, VACCP-L4R"
                            /codon_start=1
```
/translation="MSLLLENLIEEDTIFFAGSISEYDDLQMVIAGAKSKFPRSMLSI
FNIVPRTMSKYELELIHNENITGAMFTTMYNIRNNLGLGDDKLTIEAIENYFLDPNNE

VMPLIINNTDMTAVIPKKSGRRKNKNMVIFRQGSSPILCIFETRKKINIYKENMESAS
TEYTPIGDNKALISKYAGINVLNVYSPSTSMRLNAIYGFTNKNKLEKLSTNKELESYS
SSPLQEPIRLNDFLGLLECVKKNIPLTDIPTKD"
```
         gene              82731..83117
                           /gene="VACA2K100"
         CDS               82731..83117
                           /gene="VACA2K100"
                           /function="putative membrane protein"
                           /note="similar to VACWR092, VACCP-L5R"
                           /codon_start=1
```

/translation="MENVPNVYFNPVFIEPTFKHSLLSVYKHRLIVLFEVFVVFILIY
VFFRSELNMFFMPKRKIPDPIDRLRRANLACEDDKLMIYGLPWMTTQTSALSINSKPI
VYKDCAKLLRSINGSQPVSLNDVLRR"
```
         gene              83074..83535
                           /gene="VACA2K101"
         CDS               83074..83535
                           /gene="VACA2K101"
                           /function="virion protein required for
```
morphogenesis"
```
                           /note="similar to VACWR093, VACCP-J1R"
                           /codon_start=1
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/translation="MDHNQYLLTMFFADDDSFFKYLASQDDESSLSDILQITQYLDFL
LLLLIQSKNKLEAVGHCYESLSEEYRQLTKFTDSQDFKKLFNKVPIVTDGRVKLNKGY
LFDFVISLMRFKKESALATTAIDPVRYIDPRRDIAFSNVMDILKSNKVNNN"
```
         gene              83551..84084
                           /gene="VACA2K102"
         CDS               83551..84084
                           /gene="VACA2K102"
                           /function="thymidine kinase"
                           /note="similar to VACWR094, VACCP-J2R"
                           /codon_start=1
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/translation="MNGGHIQLIIGPMFSGKSTELIRRVRRYQIAQYKCVTIKYSNDN
RYGTGLWTHDKNNFEALEATKLCDVLESITDFSVIGIDEGQFFPDIVEFCERMANEGK
IVIVAALDGTFQRKPFNNILNLIPLSEMVVKLTAVCMKCFKEASFSKRLGEETEIEII
GGNDMYQSVCRKCYIDS"
```
         gene              84150..85151
                           /gene="VACA2K103"
        _CDS               84150..85151
                           /gene="VACA2K103"
                           /function="multifunctional poly-A polymerase
```
subunit, cap
```
                           methyltransferase, and transcription elongation        /
```
factor"
```
                           /note="similar to VACWR095, VACCP-J3R"
                           /codon_start=1
```

/translation="MDVVSLDKPFMYFEEIDNELDYEPESANEVAKKLPYQGQLKLLL
GELFFLSKLQRHGILDGATVVYIGSAPGTHIRYLRDHFYNLGVIIKWMLIDGRHHDPI
LNGLRDVTLVTRFVDEEYLRSIKKQLHPSKIILISDVRSKRGGNEPSTADLLSNYALQ
NVMISILNPVASSLKWRCPFPDQWIKDFYIPHGNKMLQPFAPSYSAEMRLLSIYTGEN
MRLTRVTKLDAVNYEKKMYYLNKIVRNKVVVNFDYPNQEYDYFHMYFMLRTVYCNKTF
PTTKAKVLFLQQSIFRFLNIPTTSTEKVSHEPIQRKVSSKDFMSKNRNSKRSVRSNK"
```
         gene              85066..85623
                           /gene="VACA2K104"
```

```
       CDS                     85066..85623
                               /gene="VACA2K104"
                               /function="DNA-dependent RNA polymerase subunit
rpo22"
                               /note="similar to VACWR096, VACCP-J4R"
                               /codon_start=1

/translation="MNQYNVKYLAKILCLKTEIARDPYAVINRNVLLRYTTDIEYNDL
VTLITVRHKIDSMKTVFQVFNESSINYTPVDDDYGEPIIITSYLQKGHNKFPVNFLYI
DVVISDLFPSFVRLDTTETNIVNSVLQTGDGKKTLRLPKMLETEIVVKILYRPNIPLK
IVRFFRNNMVTGVEIADRSVISVAD"
       gene                    complement(85685..86086)
                               /gene="VACA2K105"
       CDS                     complement(85685..86086)
                               /gene="VACA2K105"
                               /function="late 16kDa putative membrane protein"
                               /note="similar to VACWR097, VACCP-J5L"
                               /codon_start=1

/translation="MTDEQIYAFCDANKDDIRCKCIYPDKSIVRIGIDTRLPYYCWYE
PCKRSDALLPASLKKNITKCNVSDCTISLGNVSITDSKLDVNNVCDSKRVATENIAVR
YLNQEIRYPIIDIKWLPIGLLALAILILAFF"
       gene                    86193..90053
                               /gene="VACA2K106"
       CDS                     86193..90053
                               /gene="VACA2K106"
                               /function="DNA-dependent RNA polymerase subunit
rpo147"
                               /note="similar to VACWR098, VACCP-J6R"
                               /codon_start=1

/translation="MAVISKVTYSLYDQKEINATDIIISHVKNDDDIGTVKDGRLGAM
DGALCKTCGKTELECFGHWGKVSIYKTHIVKPEFISEIIRLLNHICIHCGLLRSREPY
SDDINLKELSGHALRRLKDKILSKKKSCWNSECMQPYQKITFSKKKVCFVNKLDDINV
PNSLIYQKLISIHEKFWPLLEIHQYPANLFYTDYFPIPPLIIRPAISFWIDSIPKETN
ELTYLLGMIVKNCNLNADEQVIQKAVIEYDDIKIISNNTTSINLSYITSGKNNMIRSY
IVARRKDQTARSVIGPSTSITVNEVGMPAYIRNTLTEKIFVNAFTVDKVKQLLASNQV
KFYFNKRLNQLTRIRQGKFIKNKIHLLPGDWVEVAVQEYTSIIFGRQPSLHRYNVIAS
SIRATEGDTIKISPGIANSQNADFDGDEEWMILEQNPKAVIEQSILMYPTTLLKHDIH
GAPVYGSIQDEIVAAYSLFRIQDLCLDEVLNILGKYGREFDPKGKCKFSGKDIYTYLI
GEKINYPGLLKDGEIIANDVDSNFVVAMRHLSLAGLLSDHKSNVEGINFIIKSSYVFK
RYLSIYGFGVTFKDLRPNSTFTNKLEAINVEKIELIKEAYAKYLNDVRDGKIVPLSKA
LEADYVESMLSNLTNLNIREIEEHMRQTLIDDPDNNLLKMAKAGYKVNPTELMYILGT
YGQQRIDGEPAETRVLGRVLPYYLPDSKDPEGRGYILNSLTKGLTGSQYYFSMLVARS
QSTDIVCETSRTGTLARKIIKKMEDMVVDGYGQVVIGNTLIKYAANYTKILGSVCKPV
DLIYPDESMTWYLEISALWNKIKQGFVYSQKQKLAKKTLAPFNFLVFVKPTTEDNAIK
VKDLYDMIHNVIDDVREKYFFTVSNIDFMEYIFLTHLNPSRIRITKETAITIFEKFYE
KLNYTLGGGTPIGIISAQVLSEKFTQQALSSFHTTEKSGAVKQKLGFNEFNNLTNLSK
NKTEIITLVSDDISKLQSVKINFEFVCLGELNPNITLRKETDKYVVDIIVNRLYIKRA
EITELVVEYMIERFISFSVIVKEWGMETFIEDEDNIRFTVYLNFVEPEELNLSKFMMV
LPGAANKGKISKFKIPISDYTGYDDFNQTKKLNKMTVELMNLKELGSFDLENVNVYPG
VWNTYDIFGIEAAREYLCEAMLNTYGEGFDYLYQPCDLLASLLCASYEPESVNKFKFG
AASTLKRATFGDNKALLNAALHKKSEPINDNSSCHFFSKVPNIGTGYYKYFIDLGLLM
RMERKLSDKISSQKIKEMEETEDF"
       gene                    complement(90050..90565)
                               /gene="VACA2K107"
       CDS                     complement(90050..90565)
```

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                        /gene="VACA2K107"
                        /function="tyr/ser protein phosphatase"
                        /note="similar to VACWR099, VACCP-H1L"
                        /codon_start=1

/translation="MDKKSLYKYLLLRSTGDMHRAKSPTIMTRVTNNVYLGNYKNAMD
APSSEVKFKYVLNLTMDKYTLPNSNINIIHIPLVDDTTTDISKYFDDVTAFLSKCDQR
NEPVLVHCAAGVNRSGAMILAYLMSKNKESLPMLYFLYVYHSMRDLRGAFVENPSFKR
QIIEKYVIDKN"
        gene                90579..91148
                            /gene="VACA2K108"
        CDS                 90579..91148
                            /gene="VACA2K108"
                            /function="unknown"
                            /note="similar to VACWR100, VACCP-H2R"
                            /codon_start=1

/translation="MDKTTLSVNACNLEYVREKAIVGVQAAKTSTLIFFVIILAISAL
LLWFQTSDNPVFNELTRYMRIKNTVNDWKSLTDSKTKLESDRGRLLAAGKDDIFEFKC
VDFGAYFIAMRLDKKTYLPQAIRRGTGDAWMVKKAAKVDPSAQQFCQYLIKHKSNNVI
TCGNEMLNELGYSGYFMSPHWCSDFSNME"
        gene                complement(91151..92125)
                            /gene="VACA2K109"
        CDS                 complement(91151..92125)
                            /gene="VACA2K109"
                            /function="IMV heparin binding surface protein
involved in
                            IMV maturation"
                            /note="similar to VACWR101, VACCP-H3L"
                            /codon_start=1

/translation="MAAVKTPVIVVPVIDRPPSETFPNVHEHINDQKFDDVKDNEVMP
EKRNVVVVKDDPDHYKDYAFIQWTGGNIRNDDKYTHFFSGFCNTMCTEETKRNIARHL
ALWDSNFFTELENKKVEYVVIVENDNVIEDITFLRPVLKAMHDKKIDILQMREIITGN
KVKTELVMDKNHAIFTYTGGYDVSLSAYIIRVTTALNIVDEIIKSGGLSSGFYFEIAR
IENEMKINRQILDNAAKYVEHDPRLVAEHRFENMKPNFWSRIGTAAAKRYPGVMYAFT
TPLISFFGLFDINVIGLIVILFIMFMLIFNVKSKLLWFLTGTFVTAFI"
        gene                complement(92126..94513)
                            /gene="VACA2K110"
        CDS                 complement(92126..94513)
                            /gene="VACA2K110"
                            /function="RAP94: tightly associated with DNA-
dependent
                            RNA polymerase, aids early-stage transcription
                            preinitiation and termination"
                            /note="similar to VACWR102, VACCP-H4L"
                            /codon_start=1

/translation="MDSKETILIEIIPKIKAYLLDANISPKSYDDFISRNKNIFVINL
YNVSTITEEDIRLLYTTIEQNIDADDQTLVAIFSYIGYKFEQAVKEEISTSLSFNDKN
TTDEMTYNLYDLFFNTLDMYLRQKKISILVNDDVRGDVIVSYKNSDLVSSFNAELEPE
IKKIPFNMKNLLPYLEKNLDQLRFSKKYLDFAYLCRHIGIPISKKKYNVRYVFLYKID
GLSIPIIIKDFLDVKYVYLENTGKIYKNSFSEDHNNSLSDWGKVIIPLLKDRHLYSYI
FLSSYHLHSYYTDLIARDEPVFVKRKKLDIIEIDEPEAWKRDVRVEFAPCEHQIRLKE
AMKVDANYFTKINNFANEFIYYEDGVAYCRVCGINIPIFNLDAADVIKNTVIVSTFNK
TIFLSEPYSYFVHSQRFIFNIIMSFDNIMKSQTWVMKYNINRLILNFLIDINSRRQEY
EKKFSSEIKRGLFFLRLSANLFESQVSSTELFYVSKMLNLNYIVALVIILNSSADFIV
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SYMTSKNKTVEESTLKYAISVVIYDFLVKTRICEKGSLDTIVLFTDVYTSIMPEELDL
HFQRITLELRKLVSIQRSALEPNYDVESRGEELPLSALKFFDTSTIIVKTMAPVHTCV
EQKIVAPTPSVEPTDASLKNFKELTCDEDIKILIRVHDTNATKLVIFPSHLKIEIERK
KLIIPLKSLYITNTLKYYYSNSYLYVFRFGDPMPFEEELIDHEHVQYKINCYNILRYH
LLPDSDVFVYFSNSLNREALEYAFYIFLSKYVNVKQWIDENITRIKELYMINFNN"

    gene   94699..95310
             /gene="VACA2K111"
    CDS   94699..95310
             /gene="VACA2K111"
             /function="morphogenesis-related, substrate of B1R
kinase:

             late gene transcription factor VLTF-4"
             /note="similar to VACWR103, VACCP-H5R"
             /codon_start=1

/translation="MAWSITNKADTSSFTKMAEIRAHLKNSAENKDKNEDIFPEDVII
PSTKPKTKRATTPRKPAATKRSTKKEEVEEEVVIEEYHQTTEKNSPSPGVGDIVESVA
AVELDDSDGDDEPMVQVEAGKVNHSARSDLSDLKVATDNIVKDLKKIITRISAVSTVL
EDVQAAGISRQFTSMTKAITTLSDLVTEGKSKVVRKKVKTCKK"

    gene   95311..96255
             /gene="VACA2K112"
    CDS   95311..96255
             /gene="VACA2K112"
             /function="topoisomerase type IB"
             /note="similar to VACWR104, VACCP-H6R"
             /codon_start=1

/translation="MRALFYKDGKLFTDNNFLNPVLDDNPAYEVLQHVKIPTHLTDVV
VYEQTWEEALTRLIFVGSDSKGRRQYFYGKMHVQNRNAKRDRIFVRVYNVMKRINCFI
NKNIKKSSTDSNYQLAVFMLMETMFFIRFGKMKYLKENETVGLLTLKNKHIEISPDEI
VIKFVGKDKVSHEFVVHKSNRLYKPLLKLTDDSSPEEFLFNKLSERKVYECIKQFGIR
IKDLRTYGVNYTFLYNFWTNVKSISPLPSPKKLIALTIKQTAEVVGHTPSISKRAYMA
TTILEMVKDKNFLDVVSKTTFDEFLSIVVDHVKSSTDG"

    gene   96292..96732
             /gene="VACA2K113"
    CDS   96292..96732
             /gene="VACA2K113"
             /function="unknown"
             /note="similar to VACWR105, VACCP-H7R"
             /codon_start=1

/translation="MEMDKRIKSLAMTAFFGELSTLDIMALIMSIFKRHPNNTIFSVD
KDGQFMIDFEYDNYKASQYLDLTLTPIFGDECKTHASSIAEQLACADIIKEDISEYIK
TTPRLKRFIKKYRNRSDTRISRDTEKLKIALAKGIDYEYIKDAC"

    gene   96776..99310
             /gene="VACA2K114"
    CDS   96776..99310
             /gene="VACA2K114"
             /function="large subunit of mRNA capping enzyme:
             transcription termination factor VTF"
             /note="similar to VACWR106, VACCP-D1R"
             /codon_start=1

/translation="MDANVVSSSTIATYIDALAKNASELEQRSTAYEINNELELVFIK
PPLITLTNVVNISTIQESFIRFTVTNKEGVKIRTKIPLSKVHGLDVKNVQLVDAIDNI
VWEKKSLVTENRLHKECLLRLSTEERHIFLDYKKYGSSIRLELVNLIQAKTKNFTIDF

KLKYFLGSGAQSKSSLLHAINHPKSRPNTSLEIEFTPRDNETVPYDELIKELTTLSRH
IFMASPENVILSPPINAPIKTFMLPKQDIVGLDLENLYAVTKTDGIPITIRVTSNGLY
CYFTHLGYIIRYPVKRIIDSEVVVFGEAVKDKNWTVYLIKLIEPVNAISDRLEESKYV
ESKLVDICDRIVFKSKKYEGPFTTTSEVVDMLSTYLPKQPEGVILFYSKGPKSNIDFK
IKKENTIDQTANVVFRYMSSEPIIFGESSIFVEYKKFSNDKGFPKEYGSGKIVLYNGV
NYLNNIYCLEYINTHNEVGIKSVVVPIKFIAEFLVNGEILKPRIDKTMKYINSEDYYG
NQHNIIVEHLRDQSIKIGDIFNEDKLSDVGHQYANNDKFRLNPEVSYFTNKRTRGPLG
ILSNYVKTLLISMYCSKTFLDDSNKRKVLAIDFGNGADLEKYFYGEIALLVATDPDAD
AIARGNERYNKLNSGIKTKYYKFDYIQETIRSDTFVSSVREVFYFGKFNIIDWQFAIH
YSFHPRHYATVMNNLSELTASGGKVLITTMDGDKLSKLTDKKTFIIHKNLPSSENYMS
VEKIADDRIVVYNPSTMSTPMTEYIIKKNDIVRVFNEYGFVLVDNVDFATIIERSKKF
INGASTMEDRPSTKNFFELNRGAIKCEGLDVEDLLSYVVVYVFSKR"
     gene   complement(99269..99709)
                      /gene="VACA2K115"
     CDS   complement(99269...99709)
                      /gene="VACA2K115"
                      /function="virion core protein"
                      /note="similar to VACWR107, VACCP-D2L"
                      /codon_start=1

/translation="MSINIDIKKITDLLNSSILFPDDVQELLREKYIVLERKSNGTPT
VAHIYKTMARFDNKSIYRIAKFLFMNRPDVIKLLFLEDVEPLLPDKSINISINNTEYP
QLEGPIGTKIALLELFNAFRTGISEPIPYYYLPLRKDINNIVTK"
     gene   99702..100415
                      /gene="VACA2K116"
     CDS   99702..100415
                      /gene="VACA2K116"
                      /function="virion core protein"
                      /note="similar to VACWR108, VACCP-D3R"
                      /codon_start=1

/translation="MDIFIVKDNKYPKVDNDDNEVFILLGNHNDFIRLKLTKLKEHVF
FSEYIVTPDTYGSLCVELNGSSFQHGGRYIEVEEFIDAGRQVRWCSTSNHISKDIPED
MHTDKFVIYDIYTFDSFKNKRLVFVQVPPSLGDDSYLTNPLLSPYYRNSVARQMVNDM
IFNQDSFLKYLLEHLIRSHYRVSKHITIVRYKDTEELNLTRICYNRDKFKAFVFAWFN   .
                      GVSENEKVLDTYKKVSNLI"
     gene   100415..101071
                      /gene="VACA2K117"
     CDS   100415..101071
                      /gene="VACA2K117"
                      /function="uracil-DNA glycosylase interacts with
A20R:
                      essential for DNA replication"
                      /note="similar to VACWR109, VACCP-D4R"
                      /codon_start=1

/translation="MNSVTVSHAPYTITYHDDWEPVMSQLVEFYNEVASWLLRDETSP
IPDKFFIQLKQPLRNKRVCVCGIDPYPKDGTGVPFESPNFTKKSIKEIASSISRLTGV
IDYKGYNLNIIDGVIPWNYYLSCKLGETKSHAIYWDKISKLLLQHITKHVSVLYCLGK
TDFSNIRAKLESPVTTIVGYHPAARDRQFEKDRSFEIINVLLELDNKAPINWAQGFIY
"
     gene   101103..103460
                      /gene="VACA2K118"
     CDS   101103..103460
                      /gene="VACA2K118"

```
                         /function="NTPase interacts with A20R: essential
for DNA

                         replication"
                         /note="similar to VACWR110, VACCP-D5R"
                         /codon_start=1

     /translation="MDATIRGNDVIFVLKTIGVPSACRQNEDPRFVEAFKCDELKRYI
ENNPECTLFESLRDEEAYSIVRIFMDVDLDACLDEIDYLTAIQDFIIEVSNCVARFAF
TECGAIHENVIKSMRSNFSLTKSTNRDKTSFHIIFLDTYTTMDTLIAMKRTLLELSRS
SENPLTRSIDTAVYRRKTTLRVVGTRKNPNCDTIHVMQPPHDNIEDYLFTYVDMNNNS
YYFSLQRRLEDLVPDKLWEPGFISFEDAIKRVSKIFINSIINFNDLDENNFTTVPLVI
DYVTPCALCKKRSHKHPHQLSLENGAIRIYKTGNPHSCKVKIVPLDGNKLFNIAQRIL
DTNSVLLTERGDHIVWINNSWKFNSEEPLITKLILSIRHQLPKEYSSELLCPRKRKTV
EANIRDMLVDSVETDTYPDKLPFKNGVLDLVDGMFYSGDNAKKYTCTVSTGFKFDDTK
FVEDSPEMEELMNIINDIQPLTDENKKNRELYEKTLSSCLCGATKGCLTFFFGETATG
KSTTKRLLKSAIGDLFVETGQTILTDVLDKGPNPFIANMHLKRSVFCSELPDFACSGS
KKIRSDNIKKLTEPCVIGRPCFSNKINNRNHATIIIDTNYKPVFDRIDNALMRRIAVV
RFRTHFSQPSGREAAENNDAYDKVKLLDEGLDGKIQNNRYRFAFLYLLVKWYRKYHVP
IMKLYPTPEEIPDFAFYLKIGTLLVSSSVKHIPLMTDLSKKGYILYDNVVTLPLTTFQ
QKISKYFNSRLFGHDIESFINRHKKFANVSDEYLQYIFIEDISSP"
          gene              103501..105414
                            /gene="VACA2K119"
          CDS               103501..105414
                            /gene="VACA2K119"
                            /function="70kDa small subunit of early gene
transcription

                            factor VETF"
                            /note="similar to VACWR111, VACCP-D6R"
                            /codon_start=1

     /translation="MNTGIIDLFDNHVDSIPTILPHQLATLDYLVRTIIDENRSVLLF
HIMGSGKTIIALLFALVASRFKKVYILVPNINILKIFNYNMGVAMNLFNDKFIAENIF
IHSTTSFYSLNYNDNVINYNGLSRYNNSIFIVDEAHNIFGNNTGELMTVIKNKNKIPF
LLLSGSPITNTPNTLGHIIDLMSEETIDFGEIISRGKKVIQTLLNERGVNVLKDLLKG
RISYYEMPDKDLPTIRYHGRKFLDTRVVYCHMSKLQERDYMITRRQLCYHEMFDKNMY
NVSMAVLGQLNLMNNLDTLFQEQDKELYPNLKINNGVLYGEELVTLNISSKFKYFINR
IQTLNGKHFIYFSNSTYGGLVIKYIMLSNGYSEYNGSQGTNPHMINGKPKTFAIVTSK
MKSSLEDLLDVYNSPENDDGSQLMFLFSSNIMSESYTLKEVRHIWFMTIPDTFSQYNQ
ILGRSIRKFSYADISEPVNVYLLAAVYSDFNDEVTSLNDYTQDELINVLPFDIKKLLY
LKFKTKETNRIYSILQEMSETYSLPPHPSIVKVLLGELVRQFFYNNSRIKYNDSKLLK
MVTSVIKNKEDARNYIDDIVNGHFFVSNKVFDKSLLYKYENDIITVPFRLSYEPFVWG
VNFRKEYNVVSSP"
          gene              105441..105926
                            /gene="VACA2K120"
          CDS               105441..105926
                            /gene="VACA2K120"
                            /function="DNA-dependent RNA polymerase subunit
rpo18"

                            /note="similar to VACWR112, VACCP-D7R"
                            /codon_start=1

     /translation="MSSFVTNGYLPVTLEPHELTLDIKTNIRNAVYKTYLHREISGKM
AKKIEIREDVELPLGEIVNNSVVINVPCVITYAYYHVGDIVRGTLNIEDESNVTIQCG
DLICKLSRDSGTVSFSDSKYCFFRNGNAYDNGSEVTAVLMEAQQGIESSFVFLANIVD
S"
          gene              complement(105889..106803)
                            /gene="VACA2K121"
```

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CDS                   complement(105889..106803)
                      /gene="VACA2K121"
                      /function="IMV membrane protein binds cell surface
                      chondroitin: may effect viral entry"
                      /note="similar to VACWR113, VACCP-D8L"
                      /codon_start=1

/translation="MPQQLSPINIETKKAISNARLKPLDIHYNESKPTTIQNTGKLVR
INFKGGYISGGFLPNEYVLSSLHIYWGKEDDYGSNHLIDVYKYSGEINLVHWNKKKYS
SYEEAKKHDDGLIIISIFLQVLDHKNVYFQKIVNQLDSIRSANTSAPFDSVFYLDNLL
PSKLDYFTYLGTTINHSADAVWIIFPTPINIHSDQLSKFRTLLSLSNHEGKPHYITEN
YRNPYKLNDDTEVYYSGEIIRAATTSPARENYFMRWLSDLRETCFSYYQKYIEGNKTF
AIIAIVFVFILTAILFFMSRRYSREKQN"
                gene       106845..107486
                           /gene="VACA2K122"
                CDS        106845..107486
                           /gene="VACA2K122"
                           /function="contains mutT-like motif of
                           NTP-phosphohydrolase for DNA repair"
                           /note="similar to VACWR114, VACCP-D9R"
                           /codon_start=1

/translation="MGITMDEEVIFETPRELISIKRIKDIPRSKDTHVFAACITSDGY
PLIGARRTSFAFQAILSQQNSDSIFRVSTKLLRFMYYNELREIFRRLRKGSINNIDPH
FEELILLGGKLDKKESIKDCLRRELKEESDERITVKEFGNVILKLTTRDKLFNKVYIS
YCMACFINQSLEDLSHTSIYNVEIRKIKSLNDCINDDKYEYLSYIYNMLVNSK"
                gene       107483..108229
                           /gene="VACA2K123"
                CDS        107483..108229
                           /gene="VACA2K123"
                           /function="contains mutT-like motif of
                           NTP-phosphohydrolase for DNA repair"
                           /note="similar to VACWR115, VACCP-D10R"
                           /codon_start=1

/translation="MNFYRSSIISQIIKYNRRLAKSIICKDDSQIITLTAFVNQCLWC
HKRVSVSAILLTTDNKILVCNRRDSFLYSEIIRTRNMFRKKRLFLNYSNYLSKQERSI
LSSFFSLYPATADNDRIDAIYPGGIPKRGENVPECLSREIKEEVNIDNSFVFIDTRFF
IHGIIEDTIINKFFEVIFFVGRISLTSDQIIDTFKSNHEIKDLIFLDPNSGNGLQYEI
AKYALDTAKLKCYGHRGCYYESLKKLTEDD"
                gene       complement(108230..110125)
                           /gene="VACA2K124"
                CDS        complement(108230..110125)
                           /gene="VACA2K124"
                           /function="ATPase, nucleoside triphosphate
                           phosphohydrolase-I, NPH-I: transcription
elongation,
                           termination, release factor"
                           /note="similar to VACWR116, VACCP-D11L"
                           /codon_start=1

/translation="MSKSHAAYIDYALRRTTNMPVEMMGTDVVRLKDYQHFVARVFLG
LDSMHSLLLFHETGVGKTMTTVYILKHLKDIYTNWAIILLVKKALIEDPWMNTILRYA
PEITKDCIFINYDDQNFRNKFFTNIKTINSKSRICVIIDECHNFISKSLIKEDGKIRP
TRSVYNFLSKTIALKNHKMICLSATPIVNSVQEFTMLVNLLRPGSLQHQSLFENKRLV
DEKELVSKLGGLCSYIVNNEFSIFDDVEGSASFAKKTVLMRYVNMSKKQEEIYQKAKL
```

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AEIKTGISSFRILRRMATTFTFDSFPERQNRDPGEYAQEIATLYNDFKNSLRDREFSK
SALDTFKKGELLKGDASAADISLFTELKEKSVKFIDVCLGILASHGKCLVFEPFVNQS
GIEILLLYFKVFGISNIEFSSRTKDTRIKAVAEFNQESNTNGECIKTCVFSSSGGEGI
SFFSINDIFILDMTWNEASLRQIVGRAIRLNSHVLTPPERRYVNVHFIMARLSNGMPT
VDEDLFEIIQSKSKEFVQLFRVFKHTSLEWIHANEKDFSPIDNESGWKTLVSRAIDLS
SKKNITNKLIEGTNIWYSNSNRLMSINRGFKGVDGRVYDVDGNYLHDMPDNPVIKIHD
GKLIYIF"

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        gene            complement(110160..111023)
                        /gene="VACA2K125"
        CDS             complement(110160..111023)
                        /gene="VACA2K125"
                        /function="small subunit of mRNA capping enzyme:
                        transcription termination factor VTF"
                        /note="similar to VACWR117, VACCP-D12L"
                        /codon_start=1
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/translation="MDEIVKNIREGTHVLLPFYETLPELNLSLGKSPLPSLEYGANYF
LQISRVNDLNRMPTDMLKLFTHDIMLPESDLDKVYEILKINSVKYYGRSTKADAVVAD
LSARNKLFKRERDAIKSNNHLTENNLYISDYKMLTFDVFRPLFDFVNEKYCIIKLPTL
FGRGVIDTMRIYCSLFKNVRLLKCVSDSWLKDSAIMVASDVCKKNLDLFMSHVKSVTK
SSSWKDVNSVQFSILNNPVDTEFINKFLEFSNRVYEALYYVHSLLYSSMTSDSKSIEN
KHQRRLVKLLL"

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        gene            complement(111054..112709)
                        /gene="VACA2K126"
        CDS             complement(111054..112709)
                        /gene="VACA2K126"
                        /function="rifampicin target associates with inner
surface
                        immature virus membrane"
                        /note="similar to VACWR118, VACCP-D13L"
                        /codon_start=1
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/translation="MNNTIINSLIGGDDSIKRSNVFAVDSQIPTLYMPQYISLSGVMT
NDGPDNQAIASFEIRDQYITALNHLVLSLELPEVKGMGRFGYVPYVGYKCINYVSVSS
CNGVIWEIEGEELYNNCINNTIALKHSGYSSELNDISIGLTPNDTIKEPSTVYVYIKT
PFDVEDTFSSLKLSDSKITVTVTFNPVSDIVIRDSSFDFETFNKEFVYVPELSFIGYM
VKNVQIKPSFIEKPRRVIGQINQPTATVTEVHAATSLSVYTKPYYGNTDNKFISYPGY
SQDEKDYIDAYVSRLLDDLVIVSDGPPTGYPESAEIVEVPEDGIVSIQDADVYVKIDN
VPDNMSVYLHTNLLMFGTRKNSFIYNISKKFSAITGTYSDATKRTIFAHISHSINIID
TSIPVSLWTSQRNVYNGDNRSAESKAKDLFINDPFIKGIDFKNKTDIISRLEVRFGND
VLYSENGPISRIYNELLTKSNNGTRTLTFNFTPKIFFRPTTITANVSRGKDKLSVRVV
YSTMDVNHPIYYVQKQLVVVCNDLYKVSYDQGVSITKIMGDNN"

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        gene            complement(112733..113185)
                        /gene="VACA2K127"
        CDS             complement(112733..113185)
                        /gene="VACA2K127"
                        /function="late gene transcription factor VLTF-2"
                        /note="similar to VACWR119, VACCP-A1L"
                        /codon_start=1
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/translation="MAKRVSLPDVVISAPKAVFKPAKEEALACILPKYYKSMADVSIK
TNSVIDKCWFCNQDLVFKPISIETFKGGEVGYFCSKICRDSLASMVKSHVALREEPKI
SLLPLVFYEDKEKVINTINLLRDKDGVYGSCYFKENSQIIDISLRSLL"

```
        gene            complement(113206..113880)
                        /gene="VACA2K128"
        CDS             complement(113206..113880)
```

```
                        /gene="VACA2K128"
                        /function="late gene transcription factor VLTF-3"
                        /note="similar to VACWR120, VACCP-A2L"
                        /codon_start=1

/translation="MNLRLCSGCRHNGIVSEQGYEYCIFCESVFQKCTKVQKKSNFHV
SNKLIHLRNVLRRLLSHQCSGEIISELLDIMEKNQISTDDVDANFVSSFLKANERINK
KDYKLVFEIINQVKDEKLNLSTEKINEVVEIFKHLVFFCQENTPSKTINYSFFLDKIF
DITSVTKNLKPQTVKNYTKNNSNQLVWENFLAHMRSKKRVTMVEDYGHEYVFVDERFS
TCSLEV"
        gene                complement(113877..114107)
                            /gene="VACA2K129"
        CDS                 complement(113877..114107)
                            /gene="VACA2K129"
                            /function="S-S bond formation pathway: CxxxC links
                            SH-oxidase E10R and thioredoxin G4L"
                            /note="similar to VACWR121, VARBSH-A3L/110"
                            /codon_start=1

/translation="MSWYEKYNIVLNPPKRCSSACADNLTTILAEDGNHIRAILYSQP
KKLKILQDFLATSRNKMFLYKILDDEIRRVLT"
        gene                complement(114122..116056)
                            /gene="VACA2K130"
        CDS                 complement(114122..116056)
                            /gene="VACA2K130"
                            /function="p4b precursor of core protein 4b"
                            /note="similar to VACWR122, VACCP-A3L"
                            /codon_start=1

/translation="MEAVVNSDVFLTSNAGLKSSYTNQTLSLVDEDHIHTSDKSLSCS
VCNSLSKIVDDDFISAGARNQRTKPKRAGNNQSQQPIKKDCMVSIDEVASTHDWSTRL
RNDGNAIAKYLTTNKYDTSNFTIQDMLNIMNKLNIVRTNRNELFQLLTHVKSTLNNAS
VSVKCTHPLVLIHSRASPRIGDQLKELDKIYSPSNHHILLSTTRFQSMHFTDMSSSQD
LSFIYRKPETNYYIHPILMALFGIKLPALENAYVHGDTYSLIQQLYEFRKVKSYNYML
LVNRLTEDNPIVITGVSDLISTEIQRANMHTMIRKAIMNIRMGIFYCNDDDAVDPHLM
KIIHTGCSQVMTDEEQILASILSIVGFRPTLVSVARPINGISYDMKLQAAPYIVVNPM
KMITTSDSPISINSKDIYSMAFDGNSGRVVFAPPNIGYGRCSGVTHIDPLGTNVMGSA
VHSPVIVNGAMMFYVERRQNKNMFGGECYTGFRSLIDDTPIDVSPEIMLNGIMYRLKS
AVCYKLGDQFFDCGSSDIFLKGHYTILFTENGPWMYDPLSVFNPGARNARLMRALKNQ
YKKLSMDSDDGFYEWLNGDGSVFAASKQQMLMNHVANFDDDLLTMEEAMSMISRHCCI
LIYAQDYDQYISARHITELF"
        gene                complement(116109..116954)
                            /gene="VACA2K131"
        CDS                 complement(116109..116954)
                            /gene="VACA2K131"
                            /function="39kDa core protein complexes with core
protein
                            p4a/4a"
                            /note="similar to VACWR123, VACCP-A4L"
                            /codon_start=1

/translation="MDFFNKFSQGLAESSTPKSSIYYSEEKDPDTKKDEAIEIGLKSQ
ESYYQRQLREQLARDNMMAASRQPIQPLQPTIHITPQPVPVPTPTSAPILLPSSTAPT
PKPRQQTNTSSDMSNLFDWLSADTDAPASSLLPALTPSNAVQDIISKFNKDQKTTTPP
STQPSQTLPTTTCTQQSDGNISCTTPTVTPPQPPIVATVCTPTPTGGTVCTTAQQNPG
ATSQQNLDDMALKDLMSNVERDMHQLQAETNDLVTNVYDAREYTRRAIDQILQLVKGF
ERFQK"
```

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     gene                116992..117486
                         /gene="VACA2K132"
     CDS                 116992..117486
                         /gene="VACA2K132"
                         /function="DNA-dependent RNA polymerase subunit
rpo19"
                         /note="similar to VACWR124, VACCP-A5R"
                         /codon_start=1

/translation="MADTDDIIDYESDDLTEYEDDEEEEDGESLETSDIDPKSSYKI
VESASTHIEDAHSNLKHIGNHISALKRRYTRRISLFEIAGIIAESYNLLQRGRLPLVS
EFSDETMKQNMLHVIIQEIEEGSCPIVIEKNGELLSVNDFDKDGLKFHLDYIIKIWKL
QKRY"
     gene                complement(117483..118601)
                         /gene="VACA2K133"
     CDS                 complement(117483..118601)
                         /gene="VACA2K133"
                         /function="unknown"
                         /note="similar to VACWR125, VACCP-A6L"
                         /codon_start=1

/translation="MDKLRVLYDEFVTISKDNLERETGLSASDVDMDFDLNIFMTLVP
VLEKKVCAITPTIEDDKIVTMMKYCSYQSFSFWFLKSGAVVKSVYNKLDDVKKEKFVA
TFRDMLLNVQTLISLNSMYTRLRQDTEDIVSDSKKIMEIVSHLRASTTENAAYQVLQQ
NNSFIISTLNKILSDENYLLKIIAVFDSKLISEKETLNEYKQLYTISSESLVYGIRCV
SNLDISSVQLSNNKYVLFVKKMLPKIILFQNNDINAQQFANVISKIYTLIYRQLTSNV
DVGCLLTDTIESAKTKISVEKIKQTGINNVQSLIKFISDNKKEYKTIISEEYLSKEDR
IITILQDIVNEHDIKYDNKLLNMRDLIVTFRERYSYKF"
     gene                complement(118625..120757)
                         /gene="VACA2K134"
     CDS                 complement(118625..120757)
                         /gene="VACA2K134"
                         /function="82kDa large subunit of early gene
transcription
                         factor VETF"
                         /note="similar to VACWR126, VACCP-A7L"
                         /codon_start=1

/translation="MRYIVSPQLVLQVGKGQEVERALYLTPYDYIDEKSPIYYFLRSH
LNIQQPEIVKRHILLTLRMTQLKGYLGNLLDIKDDIIIYSHKNNLEYSYVDNTIFNPF
VYTQKKTLLKNDSFLYNVYPGACDFLVIWVARACDTSIPEFGSYEDVDNNIIKFETML
MEVFPQLDLDITVESKFNNIFRTNLKLTGLKKIIQRVQDLDINYKSLLSRYDEHFINM
TGNHFILNDEQLNLSIWDLDGTLALSSDGDTVMINNVKLFTDLVSDIDTQMERIKGDI
TYKVHLATPINSRIKLDIETSFIFIETATNNILLSSDKKISIILAKNHISIKVKNHIP
NIEKYFTFLVIAINAMFNSVQKSADFTKVETVYWSRICQNTKNKNRKPIIINYLDPGM
KKISNNFYRSDEKEVFINDNGIMFTCMDPLGKYNKVGFLNIFHDMRKYCIPCCFLHDQ
SHRSTFSSCVHQIDVEKKIVSPYILNFGKVVTESKMSFLPIIFDAFLNDGMTANMEQD
NKRLKETSGYHIVRCCAGDDIVRLRTTSDIIQFVNEDKNILIVNDMVYFPMNASDIGK
KIHILIQEIVHEVMIVKKKESSDKIDFFPPNYKLLKDLFPKQTIQTPIQSDAGMVLTT
DGFYIDGKLFNEDLSSKYVTFTKNVIASDAVAKYFSPLFKYVISEAKDRFIKTWMINI
MIHMNVDPNNIIPTLEKYYPNSGRAQIN"
     gene                120811..121677
                         /gene="VACA2K135"
     CDS                 120811..121677
                         /gene="VACA2K135"
                         /function="32kDa small subunit of transcription
factor
```

```
                        VITF-3 used for intermediate gene expression"
                        /note="similar to VACWR127, VACCP-A8R"
                        /codon_start=1
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/translation="MFEPVPDLNLEASVELGEVNIDQTTPMIKENSGFISRSRRLFAH
RSKDDERKLALRFFLQRLYFLDHREIHYLFRCVDAVKDVTITKKNNIIVAPYIALLTI
ASKGCKLTETMIEAFFPELYNEHSKKFKFNSQVSIIQEKLGYQFGNYHVVYDFEPYYST
VALAIRDEHSSGIFNIRQESYLVSSLSEITYRFYLINLKSDLVQWSASTGAVINQMVN
TVLITVYEKLQLVIENDSQFTCSLAVESELPIKLLKDRNELFTKFINELKKTSSFKIS
KRDKDTLLKYFT"

```
        gene            complement(121670..121996)
                        /gene="VACA2K136"
        CDS             complement(121670..121996)
                        /gene="VACA2K136"
                        /function="IMV membrane protein required for
                        morphogenesis"
                        /note="similar to VACWR128, VACCP-A9L"
                        /codon_start=1
```

/translation="MSCYTAILKSVGGLALFQVANGAIDLCRHFFMYFCEQKLRPNSF
WFVVVRAIASMIMYLVLGIALLYISEQDDKKNTNNANTNNDSNSNNSNNDKRNESSIN
SNSSPK"

```
        gene            complement(121997..124672)
                        /gene="VACA2K137"
        CDS             complement(121997..124672)
                        /gene="VACA2K137"
                        /function="precursor p4a of core protein 4a,
complexes
                        with A4L"
                        /note="similar to VACWR129, VACCP-A10L"
                        /codon_start=1
```

/translation="MMPIKSIVTLDQLEDSEYLFRIVSTVLPHLCLDYKVCDQLKTTF
VHPFDILLNNSLGSVTKQDELQAAISKLGINYLIDTTSRELKLFNVTLNAGNIDIINT
PINISSETNPIINTHSFYDLPPFTQHLLNIRLTDTEYRARFIGGYIKPDGSDSMDVLA
EKKYPDLNFDNTYLFNILYKDVINAPIKEFKAKIVNGVLSRQDFDNLIGVRQYITAQD
RPRFDDAYNIADAARHYGVNLNTLPLPNVDLTTMPTYKHLIMFEQYFIYTYDRVDIYY
NGNKMLFDDEIMNFCISMRYQSLIPRLVEFFPDIPVNNNIVLHTRNPQNAAVNVTVTL
PNVQFVDIGRNHKFFINFFNLLAKEQRSTAIKVTKSMFWDGMDYEEYKSKNLQDMMFI
NSTCYVFGLYNHNNTTYCSILSDIISAEKTPIRVCLLPRVVGGKTVTNLISETLKSIS
SMTIREFPRKDKSIMHIGLSETGFMRFFQLLRLMADKPHETAIKEVVMAYVGIKLGDK
GSPYYIRKESYQDFIYLLFASMGFKVTTRRSIMGSNNISIISIRPRVTKQYIVTTLMK
TSCSKNEAEKLITSAFDLLNFMVSVSDFRDYQSYRQYRNYCPRYFYAGSPEGEETIIC
DSEPISILDRIDTRGIFSAYTINEMMDTDIFSPENKAFKNNLSRFIESGDITGEDIFC
AMPYNILDRIITNAGTCTVSIGDMLDNITTQSDCNMTNEITDMINASLKNTISKDNNM
LVSQALDSVANRSKQTIGDLRQSSCKMALLFKNLVTSIYTIERIFNAKVGDDVKASML
EKYKVFTDISMSLYKDLIAMENLKAMLYIIRRSGCRIDDAQITTDDLVKSYSLIRPKI
LSMINYYNEMSRGYFEHMKKNLNMTDGDSVSFDDE"

```
        gene            124687..125643
                        /gene="VACA2K138"
        CDS             124687..125643
                        /gene="VACA2K138"
                        /function="unknown"
                        /note="similar to VACWR130, VACCP-A11R"
                        /codon_start=1
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/translation="MTTVPVTDIQNDLITEFSEDNYPSNKNYEITLRQMSILTHVNNV

VDREHNAAVVSSPEEISSQLNEDLFPDDDSPATIIERVQPHTTIIDDTPPPTFRRELL
ISEQRQQREKRFNITVSKNAEAIMESRSMITSMPTQTPSLGVVYDKDKRIQMLEDEVV
NLRNQRSNTKSSDNLDNFTKILFGKTPYKSTEVNKRIAIVNYANLNGSPLSVEDLDVC
SEDEIDRIYKTIKQYHESRKRKIIVTNVIIIVINIIEQALLKLGFEEIKGLSTDITSE
IIDVEIGDDCDAVASKLGIGNSPVLNIVLFILKIFVKRIKII"
        gene   complement(125645..126223)
                                    /gene="VACA2K139"
        CDS   complement(125645..126223)
                                    /gene="VACA2K139"
                                    /function="core protein"
                                    /note="similar to VACWR131, VACCP-A12L"
                                    /codon_start=1

/translation="MADKKNLAVRSSYDDYIETVNKITPQLKNLLAQIGGDAAVKGGN
NNLNSQTDVTAGACDTKSKSSKCITCKPKSKSSSSSTSTSKGSKNTSGAPKRRTTVTT
TSYNAMDGQIVQAVTNAGKIVYGTVRDGQLEVRGMVGEINHDLLGIESVNAGKKKPSK
KMPTNKKINMSSGMRRQEQINPDDCCLDMGMY"
        gene   complement(126247..126459)
                                    /gene="VACA2K140"
        CDS   complement(126247..126459)
                                    /gene="VACA2K140"
                                    /function="IMV membrane protein"
                                    /note="similar to VACWR132, VACCP-A13L"
                                    /codon_start=1

/translation="MIGILLLIGICVAVTVAILYALYNKIKNPQNPNPSPNLNSPPPE
PRNTKFVNNLEKDHISSLYNLVKSSA"
        gene   complement(126567..126839)
                                    /gene="VACA2K141"
        CDS   complement(126567..126839)
                                    /gene="VACA2K141"
                                    /function="phosphorylated IMV membrane protein
required
                                  for morphogenesis"
                                  /note="similar to VACWR133, VACCP-A14L"
                                  /codon_start=1

/translation="MDMMLMIGNYFSGVLIAGIILLILSCIFAFIDFSKSTSPTRTWK
VLSIMAFILGIIITVGMLIYSMWGKHCAPHRVSGVIHTNHSDISVN"
        gene   complement(126856..127017)
                                    /gene="VACA2K142"
        CDS   complement(126856..127017)
                                    /gene="VACA2K142"
                                    /function="nonessential hydrophobic IV and IMV
membrane
                                  protein: deletion attenuates virus virulence"
                                  /note="similar to VACWR134, VACCP-A14.5L"
                                  /codon_start=1

/translation="MISNYEPLLLLVITCCVLLFNFTISSKTKIDIIFAVQTIVFIWF
IFHFVHSAI"
        gene   complement(127007..127291)
                                    /gene="VACA2K143"
        CDS   complement(127007..127291)
                                    /gene="VACA2K143"
                                    /function="unknown"
                                  /note="similar to VACWR135, VACCP-A15L"

/codon_start=1

/translation="MFVDDNSLIIYSTWPSTLSDSSGRVIVMPDNRSFTFKEGFKLDE
SIKSILLVNPSSIDLLKIRVYKHRIKWMGDIFVLFEQENIPPPFRLVNDK"
```
         gene             complement(127275..128411)
                          /gene="VACA2K144"
         CDS              complement(127275..128411)
                          /gene="VACA2K144"
                          /function="soluble myristylprotein"
                          /note="similar to VACWR136, VACCP-A16L"
                          /codon_start=1
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/translation="MGAAVTLNRIKIAPGIADIRDKYMELGFNYPEYNRAVKFAEESY
MYYYETSPGEIKPKFCLIDGMSIDHCSSFIVPEFAKQYVLIHGEPCSSFKFRPGSLIY
YQNEVTPEYIKDLKHATDYIASGQRCHFIKKDYLLGDSDSVAKCCSKTNTKHCPKIFN
NNYKTEHCDDFMTGFCRNDPGNPNCLEWLRAKRKPAMSTYSDICSKHMDARYCSEFIR
IIRPDYFTFGDTALYVFCNDHKGNRNCWCANYPKSNSGDKYLGPRVCWLHECTDESRD
RKWLYYNQDVQRTRCKYVGCTINVNSLALKNSQAELTSNCTRTTSAVGNVHHPGEPVV
KDKIKLPTWLGAAITLVVISVIFYFISIYSRPKIKTNDINVRRR"
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         gene             complement(128414..129025)
                          /gene="VACA2K145"
         CDS              complement(128414..129025)
                          /gene="VACA2K145"
                          /function="IMV membrane protein undergoes
phosphorylation
                          and proteolytic processing: required for
morphogenesis"
                          /note="similar to VACWR137, VACCP-A17L"
                          /codon_start=1
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/translation="MSYLRYYNMLDDFSAGAGVLDKDLFTEEQQQSFMPKDGGMMQND
YGGMNDYLGIFKNNDVRTLLGLILFVLALYSPPLISILMIFISSFLLPLTSLVITYCL
VTQMYRGGNGNTVGMSIVCIVAAVIIMAINVFTNSQIFNIISYIILFILFFAYVMNIE
RQDYRRSINVTIPEQYTCNKPYTAGNKVNVDIPTFNSLNTDDY"
```
         gene             129040..130521
                          /gene="VACA2K146"
         CDS              129040..130521
                          /gene="VACA2K146"
                          /function="DNA helicase: effects elongation and
                          termination of postreplicative viral
transcription"
                          /note="similar to VACWR138, VACCP-A18R"
                          /codon_start=1
```

/translation="MSLLKMEYNLYAELKKMTCGQPLSLFNEDGDFVEVEPGSSFKFL
IPKGFYASPSVKTSLVFETLTTTDNKITSINPTNAPKLYPLQRKVVSEVVSNMRKMIE
SKRPLYITLHLACGFGKTITTCYLMATHGRKTVICVPNKMLIHQWKTQVEAVGLEHKI
SIDGVSSLLKELKTQSPDVLIVVSRHLTNDAFCKYINKHYDLFILDESHTYNLMNNTA
VTRFLAYYPPMMCYFLTATPRPSNRIYCNSIINIAKLSDLKKTIYAVDSFFEPYSTDN
IRHMVKRLDGPSNKYHIYTEKLLSVDEPRNQLILNTLVEEFKSGTINRILVITKLREH
MVLFYKRLLDLFGPEVVFIGDAQNRRTPDMVKSIKELNRFIFVSTLFYSGTGLDIPSL
DSLFICSAVINNMQIEQLLGRICRETELLDRTVYVFPSTSIKEIKYMIGNFVQRIISL
SVDKLGFKQKSYRKHQESDPTSACTTSSREERVLNRIFNSQNR"
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         gene             complement(130502..130735)
                          /gene="VACA2K147"
         CDS              complement(130502..130735)
                          /gene="VACA2K147"
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                              /function="unknown"
                              /note="similar to VACWR139, VACCP-A19L"
                              /codon_start=1


/translation="MDSTNVRSGMKSRKKKPKTTVIDDDDDCMTCSACQSKLVKISDI
TKVSLDYINTMRGNTLACAACGSSLKLLNDFAS"
        gene                  complement(130736..131089)
                              /gene="VACA2K148"
        CDS                   complement(130736..131089)
                              /gene="VACA2K148"
                              /function="unknown"
                              /note="similar to VACWR140, VACCP-A21L"
                              /codon_start=1


/translation="MITLFLILCYFILIFNIIVPAISEKMRRERAAYVNYKRLNKNFI
CVDDRLFSYNFTTSGIKAKVAVDNKNVSIPCSKINEVNNNKNVDTLYCDKDRDDIPGF
ARSCYRAYSDLFFTT"
        gene                  131088..132368
                              /gene="VACA2K149"
        CDS                   131088..132368
                              /gene="VACA2K149"
                              /function="viral DNA polymerase processivity
factor:
                              interacts with other replication factors"
                              /note="similar to VACWR141, VACCP-A20R"
                              /codon_start=1


/translation="MTSSADLTNLKELLSLYKSLRFSDSAAIEKYNSLVEWGTSTYWK
IGVQKVANVETSISDYYDEVKNKPFNIDPGYYIFLPVYFGSVFIYSKGKNMVELGSGN
SFQIPDNMRSACNKVLDSDNGIDFLRFVLLNNRWIMEDAISKYQSPVNIFKLASEYGL
NIPKYLEIEIEEDTLFDDELYSIIERSFDDKFPKISISYIKLGELRRQVVDFFKFSFM
YIESIKVDRIGDNIFIPSVITKSGKKILVKDVDHLIRSKVREHTFVKVKKKNTFSILY
DYDGNGTETRGEVIKRIIDTIGRDYYVNGKYFSKVGSAGLKQLTNKLDINECATVDEL
VDEINKSGTVKRKIKNQSAFDLSRECLGYPEADFITLVNNMRFKIENCKVVNFNIENT
NCLNNPSIETIYGNFNQFVSIFNVVTDVKKRLFE"
        gene                  132298..132861
                              /gene="VACA2K150"
        CDS                   132298..132861
                              /gene="VACA2K150"
                              /function="palmitylprotein: Holliday junction
                              endonuclease: resolves viral DNA concatemers into
unit
                              length genomes"
                              /note="similar to VACWR142, VACCP-A22R"
                              /codon_start=1


/translation="METLTSSSQSLMSSPMSKKDYSSEIICAFDIGAKNPARTVLEVK
DNSVRVLDISKLDWSSDWERRIAKDLSQYEYTTVLLERQPRRSPYVKFIYFIKGFLYH
TSAAKVICVSPVMSGNSYRDRKKRSVEAFLDWMDTFGLRDSVPDRRKLDDVADSFNLA
MRYVLDKWNTNYTPYNRCKSRNYIKKM"
        gene                  132881..134029
                              /gene="VACA2K151"
        CDS                   132881..134029
                              /gene="VACA2K151"
                              /function="45kDa large subunit of intermediate
gene
                              transcription factor VITF-3"
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                            /note="similar to VACWR143, VACCP-A23R"
                            /codon_start=1

/translation="MDNLFTFLHEIEDRYARTIFNFHLISCDEIGDIYGLMKERISSE
DMFDNIVYNKDIHHAIKKLVYCDIQLTKHIINQNTYPVFNDSSQVKCCHYFDINSDNS
NISSRTVEIFEREKSSLVSYIKTTNKKRKVNYGEIKKTVHGGTNANYFSGKKSDEYLS
TTVRSNINQPWIKTISKRMRVDIINHSIVTRGKSSILQTIEIIFTNRTCVKIFKDSTM
HIILSKDKDEKGCIHMIDKLFYVYYNLFLLFEDIIQNEYFKEVANVVNHVLTATALDE
KLFLIKKMAEHDVYGVSNFKIGMFNLTFIKSLDHTVFPSLLDEDSKIKFFKGKKLNIV
ALRSLEDCINYVTKSENMIEMMKERSTILNSIDIETESVDRLKELLLK"
        gene                134026..137520
                            /gene="VACA2K152"
        CDS                 134026..137520
                            /gene="VACA2K152"
                            /function="DNA-dependent RNA polymerase subunit
rpo132"
                            /note="similar to VACWR144, VACCP-A24R"
                            /codon_start=1

/translation="MKKNTDSEMDQRLGYKFLVPDPKAGVFYRPLHFQYVSYSNFILH
RLHEILTVKRPLLSFKNNTERIMIEISNVKVTPPDYSPIIASIKGKSYDALATFTVNI
FKEVMTKEGISITKISSYEGKDSHLIKIPLLIGYGNKNPLDTAKYLVPNVIGGVFINK
QSVEKVGINLVEKITTWPKFRVVKPNSFTFSFSSVSPPNVLPTRYRHYKISLDISQLE
ALNISSTKTFITVNIVLLSQYLSRVSLEFIRRSLSYDMPPEVVYLVNAIIDSAKRITE
SITDFNIDTYINDLVEAEHIKQKSQLTINEFKYEMLHNFLPHMNYTPDQLKGFYMISL
LRKFLYCIYHTSRYPDRDSMVCHRILTYGKYFETLAHDELENYIGNIRNDIMNNHKNR
GTYAVNIHVLTTPGLNHAFSSLLSGKFKKSDGSYRTHPHYSWMQNISIPRSVGFYPDQ
VKISKMFSVRKYHPSQYLYFCSSDVPERGPQVGLVSQLSVLSSITNILTSEYLDLEKK
ICEYIRSYYKDDISYFETGFPITIENALVASLNPNMICDFVTDFRRRKRMGFFGNLEV
GITLVRDHMNEIRINIGAGRLVRPFLVVDNGELMMDVCPELESRLDDMTFSDIQKEFP
HVIEMVDIEQFTFSNVCESVQKFRMMSKDERKQYDLCDFPAEFRDGYVASSLVGINHN
SGPRAILGCAQAKQAISCLSSDIRNKIDNGIHLMYPERPIVISKALETSKIAANCFGQ
HVTIALMSYKGINQEDGIIIKKQFIQRGGLDIVTAKKHQVEIPLENFNNKERDRSNAY
SKLESNGLVRLNAFLESGDAMARNISSRTLEDDFARDNQISFDVSEKYTDMYKSRVER
VQVELTDKVKVRVLTMKERRPILGDKFTTRTSQKGTVAYVADETELPYDENGITPDVI
INSTSIFSRKTISMLIEVILTAAYSAKPYNNKGENRPVCFPSSNETSIDTYMQFAKQC
YEHSNPKLSDEELSDKIFCEKILYDPETDKPYASKVFFGPIYYLRLRHLTQDKATVRC
RGKKTKLIRQANEGRKRGGGIKFGEMERDCLIAHGAANTITEVLKDSEEDYQDVYVCE
NCGDIAAQIKGINTCLRCSKLNLSPLLTKIDTTHVSKVFLTQMNARGVKVKLDFERRP
PSFYKPLDKVDLKPSFLV"
        gene                complement(137525..137722)
                            /gene="VACA2K153"
        CDS                 complement(137525..137722)
                            /gene="VACA2K153"
                            /function="gene fragment, cowpox A-type inclusion
protein"
                            /note="similar to VACWR145, 1284aa CPXVBR-V152,
                            VACCP-A25L"
                            /codon_start=1

/translation="MSNQNIPQLSEYQTSVSQVAVTPPPKPETPQIFEYQTSDSIVNN
PRPFYNSDLEFDDIDMYLLPN"
        gene                complement(137691..138155)
                            /gene="VACA2K154"
        CDS                 complement(137691..138155)
                            /gene="VACA2K154"
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                        /function="gene fragment, cowpox A-type inclusion
protein"

                        /note="similar to VACWR146, 1284aa CPXVBR-V152,
                        VACCP-A26L"
                        /codon_start=1

/translation="METIKALEKFMEFDRLQKDCSDKLDRERERRMKAEREIARKNCG
GNPCERELKSERSNVKRLEYQLDAEKEKVKFYKRELERDRYLSSRYLTSSSDPHEKPL
PNYTFPRIKNVSPLTTEATGSVEVAPPSTDVTEPISDVTPSVDVEPEHPPAF"
        gene            complement(138427..139110)
                        /gene="VACA2K155"
        CDS             complement(138427..139110)
                        /gene="VACA2K155"
                        /function="gene fragment, cowpox A-type inclusion
protein"

                        /note="similar to VACWR147, 1284aa CPXVBR-V152"
                        /codon_start=1

/translation="MKPMPKQREMRRLRDRISDIERQLSDCRRNNESNADMEREMQRL
RDRIMDLDRQLNECKRNGNGASSEEVNRLKTRIRDLERSLEICSKDESELYSAYKTKL
GRAREQISNLQESLRRERESDKTDSYYRRELTRERNKIVELEKELNKCFDAKYIDEIN
SKKTRISDLERQLAACKSNGGSNGNMDQYKREIESLKRELAECRRGNNGSHSDCKYYD
EEARDCVKS"
        gene            complement(139070..141235)
                        /gene="VACA2K156"
        CDS             complement(139070..141235)
                        /gene="VACA2K156"
                        /function="gene fragment, cowpox A-type inclusion
protein"

                        /note="similar to VACWR148, 1284aa CPXVBR-V152"
                        /codon_start=1

/translation="MEVTNLIEKCTKHSKDFATEVEKLWNDELSSESGLSRKTRNVIR
NILRDITKSLTTDKKSKCFRILERSTINGEQIKDVYKTIFNNGVDVESRINTTGKYVL
FTVMTYVAAELRLIKSDEIFALLSRFFNMICDIHRKYGCGNMFVGIPAALIILLEIDH
INKLFSVFSTRYDAKTYLYTEYFLFLNINHYLLSGSDLFINVAYGAVSFSSPISVPDY
IMEALTFKACDHIMKSGDLKYTYAFTKKVKDLFNTKSDSVYQYVRLHEMSYDGVSEDT
DDDDEVFAILNLSIDSSVDRYRNRVLLLTPEVASLRKEYSEVEPDYKYLMDEEVPAYD
KHLPKPITNTGIEEPHATGGDEDQPIKVVHPPNNDKDDAIKPYNPLEDPNYVPTITRT
AIGIADYQLVINKLIEWLDKCEEECGNSGEFKTELEEAKRKLTELNAELSDKLSKIRT
LERDSVYKTERIDRLTKEIKEHRDIQNGTDDGSDLLEIDKKTIRELRESLDREREMRS
ELEKELDTIRNGKVDGSCQRELELSRMWLKQRDDDLRAEIDKRRNVEWELSRLRRDIK
ECDKYKEDLDKAKTNISNYVSKISTLESEIAKYQQDRDTLSVVRRELEEERRRVRDLD
ECTRNQEDTQEVDALRSRIRELENKLTDCIESGGGNLTEISRLQSKISDLERQLSECR
ENATEISRLQSRISDLERQLNDCRRNNETNAETERDATS"
        gene            complement(141280..142782)
                        /gene="VACA2K157"
        CDS             complement(141280..142782)
                        /gene="VACA2K157"
                        /function="gene fragment, cowpox A-type inclusion
protein"

                        /note="similar to VACWR149, 1284aa CPXVBR-V152"
                        /codon_start=1

/translation="MANIINLWNGIVPTVQDVNVASITAFKSMIDETWDKKIEANTCI
SRKHRNIIHEVIRDFMKAYPKMDENKKSPLGAPMQWLTQYYILKNEYHKTMLAYDNGS
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LNTKFKTLNIYMITNVGQYILYIVFCIISGKNHDGTPYIYDSEITSNDKNLINERIKY
ACKQILHGQLTIALRIRNKFMFIGSPMYLWFNVNGSQVYHDIYDRNAGFHNKEIGRLL
YAFMYYLSISGRFLNDFALLKFTYLGESWTFSLSVPEYILYGLGYSVFDTIEKFSNDA
ILVYIRTNNRNGYDYVEFNKKGIAKVTEAKPDNDKRIHAIRLINDSSDVQHIHFGFRN
MVIIDNECANIQSSAENATDTGHHQDSKINIEVEDDVIDDDDYNPKPTPIPEPHPRPP
FPRHEYHKRPKLLPVEEPDPVKKDADRIRLDNHILNTLDHNLNFIGHYCCDTAAVDRL
EHHIETLGQYAVILARKINMQTLLFPWPLPTVHPHAIDGSIPPHGRSTIL"
          gene   complement(142832..143164)
                              /gene="VACA2K158"
          CDS   complement(142832..143164)
                              /gene="VACA2K158"
                              /function="IMV surface protein: roles in IMV-cell
                              attachment, fusion, and microtubule transport"
                              /note="similar to VACWR150, VACCP-A27L"
                              /codon_start=1

/translation="MDGTLFPGDDDLAIPATEFFSTKAAKKPEAKREAIVKADEDDNE
ETLKQRLTNLEKKITNVTTKFEQIEKCCKRNDEVLFRLENHAETLRAAMISLAKKIDV
                              QTGRRPYE"
          gene   complement(143165..143605)
                              /gene="VACA2K159"
          CDS   complement(143165..143605)
                              /gene="VACA2K159"
                              /function="unknown, putative signal peptide"
                              /note="similar to VACWR151, VACCP-A28L"
                              /codon_start=1

/translation="MNSLSIFFIVVATAAVCLLFIQGYSIYENYGNIKEFNATHAAFE
YSKSIGGTPALDRRVQDVNDTISDVKQKWRCVVYPGNGFVSASIFGFQAEVGPNNTRS
                              IRKFNTMQQCIDFTFSDVINIDIYNPCVVPNINNAECQFLKSVL"
          gene   complement(143606..144523)
                              /gene="VACA2K160"
          CDS   complement(143606..144523)
                              /gene="VACA2K160"
                              /function="DNA-dependent RNA polymerase rpo35"
                              /note="similar to VACWR152, VACCP-A29L"
                              /codon_start=1

/translation="MQHPREENSIVVELEPSLATFIKQGFNNLVKWPLLNIGIVLSNT
STAVNEEWITAVEHIPTMKIFYKHIHKILTREMGFLVYLKRSQSERDNYITLYDFDYY
IIDKDTNSVTMVDKPTELKETLLHVFQEYRLKSSQTIELIAFSSGTVINEDIVSKLTF
LDVEVFNREYNNVKTIIDPDFVSRSPFIVISPMGKLTFFVEVYSWFDFKSCFKDIIDF
LEGALIANIHNHMIKVGNCDETVSSYNPESGMLFVNDLMTMNIVNFFGCNSRLESYHR
                              FDMTKVDVELFIKALSDACKKILSASNRL"
          gene   complement(144486..144719)
                              /gene="VACA2K161"
          CDS   complement(144486..144719)
                              /gene="VACA2K161"
                              /function="IMV protein for association of dense
viroplasm
                              with viral membranes during morphogenesis"
                              /note="similar to VACWR153, VACCP-A30L"
                              /codon_start=1

/translation="MEDLNEANFSHLLINLSNNKDIDAQYASTLSVVHELLSAINFKI
FNINKKSKKNSKSIEQHPVVHHAASAGREFNRR"

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    gene                 144879..145253
                         /gene="VACA2K162"
    CDS ·                144879..145253
                         /gene="VACA2K162"
                         /function="unknown"
                         /note="similar to VACWR154, VACCP-A31R"
                         /codon_start=1

/translation="MASILNTLRFLEKTSFYNCNDSITKEKIKIKHKGMSFVFYKPKH
STVVKYLSGGGIYHDDLVVLGKVTINDLKMMLFYMDLSYHGVTSSGAIYKLGSSIDRL
                         SLNRTIVTKVNNYDDTFFDDDD"
    gene                 complement(145220..146032)
                         /gene="VACA2K163"
    CDS                  complement(145220..146032)
                         /gene="VACA2K163"
                         /function="putative ATPase involved in DNA
packaging"
                         /note="similar to VACWR155, VACCP-A32L"
                         /codon_start=1

/translation="MNCFQEKQFSRENLLKMPFRMVLTGGSGSGKTIYLLSLFSTLVK
KYKHIFLFTPVYNPDYDGYIWPNHINFVSSQEALEYNLIRTKSNIEKCIAVAQNHKKS
AHFLLIFDDVGDKLSKCNTLIEFLNFGRHLNTSIILLCQTYRHVPILGRANITHFCSF
NISISDAENMLRSMPVKGKRKDILNMLNMIQTARSNNRLAIIIEDSVFCEGELRICTD
TADKDVIEQKLNIDILVNQYSHMKKNLNTILESTKTKLCNSDQSSSSKNVSS"
    gene                 146150..146707
                         /gene="VACA2K164"
    CDS                  146150..146707
                         /gene="VACA2K164"
                         /function="EEV membrane phosphoglycoprotein
associates
                         with A36R: involved in CEV-cell adherence and
actin tail
                         formation"
                         /note="similar to VACWR156, VACCP-A33R"
                         /codon_start=1

/translation="MMTPENDEEQTSVFSATVYGDKIQGKNKRKRVIGLCIRISMVIS
LLSMITMSAFLIVRLNQCMSANEAAITDAAVAVAAASSTHRKVASSTTQYDHKESCNG
LYYQGSCYILHSDYQLFSDAKANCTAESSTLPNKSDVLITWLIDYVEDTWGSDGNPIT
KTTSDYQDSDVSQEVRKYFCVKTMN"
    gene                 146731..147237
                         /gene="VACA2K165"
    CDS                  146731..147237
                         /gene="VACA2K165"
                         /function="EEV glycoprotein involved in CEV cell
adherence
                         and actin tail formation"
                         /note="similar to VACWR157, VACCP-A34R"
                         /codon_start=1

/translation="MKSLNRQTVSRFKKLSVPAAIMMILSTIISGIGTFLHYKEELMP
SACANGWIQYDKHCYLDTNIKMSTDNAVYQCRKLRARLPRPDTRHLRVLFSIFYKDYW
VSLKKTNNKWLDINNDKDIDISKLTNFKQLNSTTDAEACYIYKSGKLVKTVCKSTQSV
LCVKKFYK"
    gene                 147281..147811
                         /gene="VACA2K166"
```

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        CDS                     147281..147811
                                /gene="VACA2K166"
                                /function="unknown"
                                /note="similar to VACWR158, VACCP-A35R"
                                /codon_start=1

/translation="MDAAFVITPMGVLTITDTLYDDLDISIMDFIGPYIIGNIKTVQI
DVRDIKYSDMQKCYFSYKGKIVPQDSNDLARFNIYSICAAYRSKNTIIIACDYDIMLD
IEDKHQPFYLFPSIDVFNATIIEAYNLYTAGDYHLIINPSDNLKMKLSFNSSFCISDG
NGWIIIDGKCNSNFLS"
        gene                    147878..148543
                                /gene="VACA2K167"
        CDS                     147878..148543
                                /gene="VACA2K167"
                                /function="IEV transmembrane phosphoprotein
interacts with
                                A33R and used in actin tail formation"
                                /note="similar to VACWR159, VACCP-A36R"
                                /codon_start=1

/translation="MMLVPLITVTVVAGTILVCYILYICRKKIRTVYNDNKIIMTKLK
KIKSSNSSKSSKSTDSESDWEDHCSAMEQNNDVDNISRNEILDDDSFAGSLIWDNESN
VMAPSTEHIYDSVAGSTLLINNDRNEQTIYQNTTVVINETETVKVLNEDTKQNPNYSS
NPFVNYNKTSICSKSNPFITELNNKFSENNPFRRAHSDDYLNKQEQDHEHDDIESSVV
SLV"
        gene                    148607..149398
                                /gene="VACA2K168"
        CDS                     148607..149398
                                /gene="VACA2K168"
                                /function="unknown"
                                /note="similar to VACWR160, VACCP-A37R"
                                /codon_start=1

/translation="MEIFPVFGISKISNFIANNDCRYYIDTEHQKIISDEINRQMDET
VLLTNILSVEVVNDNEMYHLIPHRLSTIILCISSVGGCVISIDNDVNGKNILTFPIDH
AVIISPLSKCVVVSKGPTTILVVKADIPSKRLVTSFTNDILYVNNLSLINYLPLSVFI
IRRVTDYLDRHICDQIFANNKWYSIITIDNKQFPIPSNCIGMSSAKYINSSIEQDTLI
HVCNLEHPFDLVYKKMQSYNSVPIKEQILYGRIDNINMSISISVY"
        gene                    149488..149676
                                /gene="VACA2K169"
        CDS                     149488..149676
                                /gene="VACA2K169"
                                /function="unknown"
                                /note="similar to VARWR161, VARGAR-A43R-like"
                                /codon_start=1

/translation="MDSFSSLFMKLCCISTDKTGSKKSDKKNKNKIKDYMEHDYYKIT
IVPGSSSTSTSSWYYTHA"
        gene                    complement(149673..150506)
                                /gene="VACA2K170"
        CDS                     complement(149673..150506)
                                /gene="VACA2K170"
                                /function="CD47-like putative membrane protein"
                                /note="similar to VACWR162, VACCP-A38L"
                                /codon_start=1

/translation="MSRVRISLIYLYTLVVITTTKTIEYTACNDTIIIPCTIDNPTKY
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IRWKLDNHDILTYNKTSKTTILSKWHTSARLHSLSDSDVSLIIEYKDILPGTYTCGDN
TGIKSTVKLVQLHTNWFNDYQTMLMFIFTGITLFLLFLEITYTSISVVFSTNLGILQV
FGCVIAMIELCGAFLFYPSMFTLRHIIGLLMMTLPSIFLIITKVFSFWLLCKLSCAVH
LIIYYQLAGYILTVLGLGLSLKECVDGTLLLSGLGTIMVSEHFSLLFLVCFPSTQRDY
Y"
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        gene               150523..150921
                           /gene="VACA2K171"
        CDS                150523..150921
                           /gene="VACA2K171"
                           /function="gene fragment, semaphorin-like: intact
protein
                           proinflammatory in VAC-mouse skin lesion model:
host
                           defense modulator"
                           /note="similar to VACWR163, 403aa VACCP-A39L"
                           /codon_start=1
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/translation="MIPLLFILFYFANGIEWHKFETSEEIISTYLLDDVLYTGVNGAV
YTFSNNKLNKTGLTNNNYITTSIKVEDADKDTLVCGTNNGNPKCWKIDGSDDPKHRGR
GYAPYSKVTIISYNECVLSDINISKEGIKR"
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        gene               151287..151715
                           /gene="VACA2K172"
        CDS                151287..151715
                           /gene="VACA2K172"
                           /function="gene fragment, semaphorin-like: intact
protein
                           proinflammatory in VAC-mouse skin lesion model:
host
                           defense modulator"
                           /note="similar to VACWR164, 403aa VACCP-A39L"
                           /codon_start=1
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/translation="MNTIKQSFSTSKLEGYTKQLPSPAPGICLPAGKVVPHTTFEVIE
KYNVLDDIIKPLSNQPIFEGPSGVKWFDIKEKENEHREYRIYFIKENSIYSFDTKTKQ
TRSAQVNAQLFSVMVTAKPLFIADIGIGVGMPQMKKILKM"
```
        gene               151741..152247
                           /gene="VACA2K173"
        CDS                151741..152247
                           /gene="VACA2K173"
                           /function="C-type lectin-like type-II membrane
protein:
                           deletion attenuates intradermal lesion in VAC-
mouse model:
                           host defense modulator"
                           /note="similar to VACWR165, VACCP-A40R"
                           /codon_start=1
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/translation="MNKHKTDYAGYACCVICGLIVGIIFTATLLKVVERKLVHTPSID
KTIKDAYIREDCPTDWISYNNKCIHLSTDRKTWEEGRNTCKALNPNSDLIKIETPNEL
SFLRSIRRGYWVGESEILNQTTPYNFIAKNATKNGNIFVVQRILPNCIRVTLYNNYTT
FLSYHYFG"
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        gene               complement(152305..152964)
                           /gene="VACA2K174"
        CDS                complement(152305..152964)
                           /gene="VACA2K174"
                           /function="secreted glycoprotein: deletion causes
more
```

severe lesion and enhanced viral clearance in VAC-
mouse

skin model: host defense modulator"
/note="similar to VACWR166, VACCP-A41L"
/codon_start=1

/translation="MYSLLFIILMCIPFSFQTVYDDKSVCDSDNKEYMGIEVYVEATL
DEHLRQTTCESEIHKYGASVSNGGLNISVDLLNCFLNFHTVGVYTNRDTVYAKFASLD
PWTTEPINSMTHDDLVKLTKECIVDIYLKCEVDKTKDFMKTNGNRLKPRDFKTVPPSD
VGSMIELQSDYCVNDVTAYVKIYDECGNIKQHSIPTLRDYFTTKNGQPRKILKKKFDN
C"

gene	153129..153530
	/gene="VACA2K175"
CDS	153129..153530
	/gene="VACA2K175"
	/function="profilin-like"
	/note="similar to VACWR167, VACCP-A42R"
	/codon_start=1

/translation="MAEWHKIIEDISKNNKFEDAAIVDYKTTKNVLAAIPNRTFAKIN
PGEIIPLITNRNILKPLIGQKYCIVYTNSLMDENTYAMELLTGYAPVSPIVIARTHTA
LIFLMGKPTTSRRDVYRTCRDHATRVRATGN"

gene	153568..154152
	/gene="VACA2K176"
CDS	153568..154152
	/gene="VACA2K176"
	/function="putative type-I membrane glycoprotein"
	/note="similar to VACWR168, VACCP-A43R"
	/codon_start=1

/translation="MMMMKWIISILTMSIMPVLAYSSSIFRFHSEDVELCYGHLYFDR
IYNVVNIKYNPHIPYRYNFINRTLTVDELDDNVFFTHGYFLKHKYGSLNPSLIVSLSG
NLKYNDIQCSVNVSCLIKNLATSTSTILTSKHKTYSLHRSKCIIIIGYDSIIWYKDIN
DKYNGIYDFTAICMLIASTLIVTIYVFKKIKMNS"

gene	complement(154490..155530)
	/gene="VACA2K177"
CDS	complement(154490..155530)
	/gene="VACA2K177"
	/function="hydroxysteroid dehydrogenase: deletion
	attenuates intradermal lesion in VAC-mouse model:
host
	defense modulator"
	/note="similar to VACWR170, VACCP-A44L"
	/codon_start=1

/translation="MAVYAVTGGAGFLGRYIVKLLISADDVQEIRVIDIVEDPQPITS
KVKVINYIQCDINDFDKVREALNGVNLIIHTAALVDVFGKYTDNEIMKVNYYGTQTIL
AACVDLGIKYLIYTSSMEAIGPNKHGDPFIGHEHTLYDISPGHVYAKSKRMAEQLVMK
ANNSVIMNGAKLYTCCLRPTGIYGEGDKLTKVFYEQCKQHGNIMYRTVDDNAVHSRVY
VGNAAWMHVLAAKYIQYPGSKIKGNAYFCYDYSPSCSYDMFNLLLMKPLGIEQGSRIP
RWMLKMYACKNDMKRILFRKPSLLNNYTLKISNTTFEVRTNNAELDFNYSPIFDVDVA
FERTRKWLEESE"

gene	155577..155954
	/gene="VACA2K178"
CDS	155577..155954
	/gene="VACA2K178"

```
                              /function="inactive Cu-Zn superoxide dismutase-
like in
                              virion"
                              /note="similar to VACWR171, VACCP-A45R"
                              /codon_start=1

/translation="MAVCIINHDNIRGVIYFEPVHGKDKVLGSVIGLKSGTYSLIIHR
YGDISQGCDSIGSPEIFIGNIFVNRYGVAYVYLDTDVNIFTIIGKALSISKNDQRLAC
GVIGISYINEKIIHFLTINENGV"
        gene                  155944..156666
                              /gene="VACA2K179"
        CDS                   155944..156666
                              /gene="VACA2K179"
                              /function="Toll/IL1-receptor [TIR]-like:
suppresses
                              TIR-dependent signal transduction: host defense
modulator"
                              /note="similar to VACWR172, VACCP-A46R"
                              /codon_start=1

/translation="MAFDISVNASKTINALVYFSTQQNKLVIRNEVNDTHYTVEFDRD
KVVDTFISYNRHNDSIEIRGVLPEETNIGCAVNTPVSMTYLYNKYSFKLILAEYIRHR
NTISGNIYSALMTLDDLAIKQYGDIDLLFNEKLKVDSDSGLFDFVNFVKDMICCDSRI
VVALSSLVSKHWELTNKKYRCMALAEHISDSIPISELSRLRYNLCKYLRGHTESIEDK
FDYFEDDDSSTCSAVTDRETDV"
        gene                  complement(156754..157488)
                              /gene="VACA2K180"
        CDS                   complement(156754..157488)
                              /gene="VACA2K180"
                              /function="unknown"
                              /note="similar to VACWR173, VACCP-A47L"
                              /codon_start=1

/translation="MGNKNIKPSKENRLSILSKDKMDSFKRGSWATSSFREKSRATIQ
RFSSLRREHIKVDHPDKFLELKREIYEIIQKSSSIDVDKRTKLMSNIKTMMINPFMIE
GLMTSLENLDPDNKMSYSSVMILGEFDIINISDNEAAFEFINSLLKSLLLLNTRQLKL
LEYSISNDLLYAHINALEYIIKNTFNVPERQLILRGQYLTPIFSDLLKYAGLTIKSNI
LMWNKQFIKPVSDLYTSIRLLYCVTV"
        gene                  157587..158201
                              /gene="VACA2K181"
        CDS                   157587..158201
                              /gene="VACA2K181"
                              /function="thymidylate kinase"
                              /note="similar to VACWR174, VACCP-A48R"
                              /codon_start=1

/translation="MSRGALIVFEGLDKSGKTTQCMNIMESIPANTIKYLNFPQRSTV
TGKMIDDYLTRKKTYNDHIVNLLFCANRWEFASFIQEQLEQGITLIVDRYAFSGVAYA
AAKGASMTLSKSYESGLPKPDLVIFLESGSKEINRNVGEEIYEDVTFQQKVLQEYKKM
IEEGDIHWQIISSEFEEDVKKELIKNIVIEAIHTVTGPVGQLWM"
        gene                  158249..158737
                              /gene="VACA2K182"
        CDS                   158249..158737
                              /gene="VACA2K182"
                              /function="unknown"
                              /note="similar to VACWR175, VACCP-A49R"
                              /codon_start=1
```

/translation="MDEAYYSGNLESVLGYVSDMHTELASISQLVIAKIETIDNDILN
KDIVNFIMCRSNLDNPFISFLDTVYTIIDQEIYQTELINSLDDNEIIDCIVNKFMSFY
KDNLENIVDAIITLKYIMNNPDFKTTYAEVLGSRIADIDIKQVIRENILQLSNNIRER
YL"
```
        gene                    158769..160427
                                /gene="VACA2K183"
        CDS                     158769..160427
                                /gene="VACA2K183"  .
                                /function="DNA ligase"
                                /note="similar to VACWR176, VACCP-A50R"
                                /codon_start=1
```

/translation="MTSFREFRKLCCAIYHASGYKEKSKLIRDFITDRDDKYLIIKLL
LPGLDDRIYNMNDKQIIKLYSIIFKQSQEDMLQDLGYGYIGDTISTFFKENTEIRPRD
KSILTLEDVDSFLTTLSSVTKELHQIKLLTDVASVCTCNDLKCVVMLIDKDLKIKAGP
RYVLNAISPHAYDVFRKSNNLKEIIENASKQNLDSISISVMTPINPMLAESCDSVNKA
FKKFPSGMFAEVKYDGERVQVHKNNNEFAFFSRNMKPVLSHKVDYLKEYIPKAFKKAT
SIVLDSEIVLVDEHNVPLPFGSLGIHKKKEYKNSNMCLFVFDCLYFDGFDMTDIPLYE
RRSFLKDVMVEIPNRIVFSELTNISNESQLTDVLDDALTRKLEGLVLKDINGVYEPGK
RRWLKIKRDYLNEGSMADSADLVVLGAYYGKGAKGGIMAVFLMGCYDDKSGKWKTVTK
CSGHDDNTLRELQDQLKMIKINKDPKKIPEWLVVNKIYIPDFVVEDPKQSQIWEISGA
EFTSSKSHTANGISIRFPRFTRIREDKTWKESTHLNDLVNLTKS"
```
        gene                    160480..160689
                                /gene="VACA2K184"
        CDS                     160480..160689
                                /gene="VACA2K184"
                                /function="gene fragment, unknown"
                                /note="similar to VACWR177, VACCP-A51R"
                                /codon_start=1
```

/translation="MDGVIVYCLNALVKHGEEINHIKNDFMIKPCCEKVKNVHIDGQS
KNNTVIADLPYLDNAVSDVCKSIYI"
```
        gene                    160668..161468
                                /gene="VACA2K185"
        CDS                     160668..161468
                                /gene="VACA2K185"
                                /function="gene fragment, unknown"
                                /note="similar to VACWR177, VACCP-A51R"
                                /codon_start=1
```

/translation="MQIDIYIVSRISRFANLIKIDDDDKTPTGVYNYFKPKDAIPVII
SIGKDRDVCELLISSDKACACIELNSYKVAILPMDVSFFTKGNASLIILLFDFSIDAA
PLLRSVTDNNVIISRHQRLHDELPSSNWFKFYISIKSDYCSILYMVVDGSVMHAIADN
RTYANISKNILDNTTINDECRCCYFEPQIRILDRDEMLNGSSCDMNRHCIMMNLPDVG
KFGSSMLGKYEPDMIKIALLVAGNLIRNRDYIPGRRGYSYYVYGIASR"
```
        gene                    161538..162110
                                /gene="VACA2K186"
        CDS                     161538..162110
                                /gene="VACA2K186"
                                /function="Toll/IL1-receptor [TIR]-like suppresses
                                TIR-dependent signal transduction: host defense
modulator"
                                /note="similar to VACWR178, VACCP-A52R"
                                /codon_start=1
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/translation="MDIKIDISIFGDKFTVTTRRENEEKKKYLPLQKEKTTDVIKPDY

LEYDDLLDRDEMFTILEEYFMYRGLLGLRIKYGRLFNEIKKFDNDAEEQFGTIEELKQ
KLRLNSEEGADNFIDYIKVQKQDIVKLTVYDCISMIGLCACVVDVWRNEKLFSRWKYC
LRAIKLFINDHMLDKIKSILQNRLVYVEMS"

```
        gene            complement(162251..162361)
                        /gene="VACA2K187"
        CDS             complement(162251..162361)
                        /gene="VACA2K187"
                        /function="unknown"
                        /note="similar to VACCP-A54L"
                        /codon_start=1
```

/translation="MFKVIRLKYIFEINSCISHPSILDLYVLKNTILLIL"

```
        gene            162432..162830
                        /gene="VACA2K187"
        CDS             162432..162830
                        /gene="VACA2K187"
                        /function="gene fragment, secreted TNF-receptor-
like
                        protein: CrmC, intact in some VAC strains: host
defense
                        modulator"
                        /note="similar to VACWR179, VACCP-A53R"
                        /codon_start=1
```

/translation="MDIKNLLTVCTIFYITTLATADIPTSSLPHAPVNGACDEGEYLD
KRHNQCCNQCPPGEFAKVRCSGSDNTKCERCPPHTYTAIPNYSNGCHQCRKCPTGSFD
KVKCTGTQNSKCSCLPGWYCATDSSQTEDC"

```
        gene            163247..164941
                        /gene="VACA2K188"
        CDS             163247..164941
                        /gene="VACA2K188"
                        /function="kelch-like"
                        /note="similar to VACWR180, VACCP-A55R"
                        /codon_start=1
```

/translation="MNSSSKLIAVINGFRNSGRFCDINIVINDERINAHKLILSGASE
YFSILFSNNFIDSNEYEVNLSHLDYQSVNDLIDYIYGIPLSLTNDNVKYILSTADFLQ
IGSAITECENYILKNLCSKNCIDFYIYADKYNNKKIESASFNTILQNILRLINDENFK
YLTEESMIKILSDDMLNIKNEDFAPLILIKWLESTQQSCTVELLKCLRISLLSPQVIK
SLYSHQLVSSIYECITFLNNIAFLDESFPRYHSIELISIGISNSRDKISINCYNHKKN
TWEMISSRRYRCSFAVAVLDNIIYMMGGYDQSPYRSSKVIAYNTCTNSWIYDIPELKY
PRSNCGGLADDEYIYCIGGIRDQDSSLTSSIDRWKPSKPYWQKYAKMREPKCDMGVAM
LNGLIYVMGGIVKGDTCTDALESLSEDGWMKHQRLPIKMSNMSTIVHDGKIYISGGYN
NSSVVNVISNLVLSYNSIYDEWTKLSSLNIPRINPALWSAHNKLYVGGGISDDVQTNT
SETYDKEKDCWTLDNGHVLPRNYIMYKCEPIKHKYPLEKTQYTNDFLKYLESFIGS"

```
        gene            164991..165920
                        /gene="VACA2K189"
        CDS             164991..165920
                        /gene="VACA2K189"
                        /function="hemagglutinin: EEV: type-I membrane
                        glycoprotein: inhibits cell fusion"
                        /note="similar to VACWR181, VACCP-A56R"
                        /codon_start=1
```

/translation="MTRLPILLLLISLVYATPFPQTSKKIGDDATLSCNRNNTNDYVV
MSAWYKEPNSIILLAAKSDVLYFDNYTKDKISYDSPYDDLVTTITIKSLTARDAGTYV

```
CAFFMTSTTNDTDKVDYEEYSTELIVNTDSESTIDIILSGSTHSPETSSEKPDYIDNS
NCSSVFEIATPEPITDNVEDHTDTVTYTSDSINTVSATSGESTTDETPEPITDKEDHT
VTDTVSYTTVSTSSGIVTTKSTTDDTYNDNDTVPPTTVGGSTTSISNYKTKDFVEIFG
ITALIILSAVAIFCITYYICNKRSRKYKTENKV"
         gene            166065..166520
                         /gene="VACA2K190"
         CDS             166065..166520
                         /gene="VACA2K190"
                         /function="guanylate kinase"
                         /note="similar to VACWR182, VACCP-A57R"
                         /codon_start=1

/translation="MEREGVDYHYVNREAIWKGIAAGNFLEHTEFLGNIYGTSKTAVN
TAAINNRICVMDLNIDGVRSLKNTYLMPYSVYIRPTSLKMVETKLRCRNTEANDEIHR
RVILAKTDMDEANEAGLFDTIIIEDDVNLAYSKLIQILQDRIRMYFNTN"
         gene            166671..167573
                         /gene="VACA2K191"
         CDS             166671..167573
                         /gene="VACA2K191"
                         /function="ser/thr kinase essential for viral DNA
                         replication"
                         /note="similar to VACWR183, VACCP-B1R"
                         /codon_start=1

/translation="MNFQGLVLTDNCKNQWVVGPLIGKGGFGSIYTTNDNNYVVKIEP
KANGSLFTEQAFYTRVLKPSVIEEWKKSHNIKHVGLITCKAFGLYKSINVEYRFLVIN
RLGADLDAVIRANNNRLPKRSVMLIGIEILNTIQFMHEQGYSHGDIKASNIVLDQIDK
NKLYLVDYGLVSKFMSNGEHVPFIRNPNKMDNGTLEFTPIDSHKGYVVSRRGDLETLG
YCMIRWLGGILPWTKISETKNCALVSATKQKYVNNTATLLMTSLQYAPRELLQYITMV
NSLTYFEEPNYDEFRHILMQGVYY"
         gene            167663..168322
                         /gene="VACA2K192"
         CDS             167663..168322
                         /gene="VACA2K192"
                         /function="unknown"
                         /note="similar to VACWR184, VACCP-B2R"
                         /codon_start=1

/translation="MAMFYAHALGGYDENLHAFPGISSTVANDVRKYSVVSVYNNKYD
IVKDKYMWCYSQVNKRYIGALLPMFECNEYLQIGDPIHDQEGNQISIITYRHKNYYAL
SGIGYESLDLCLEGVGIHHHVLEAGNAVYGKVQHDYSTIKEKAKEMSTLSPGPIIDYH
VWIGDCICQVTAVDVHGKEIMKMRFKKGAVLPIPNLVKVKLGENDTENLSSTISAAPS
R"
         gene            168358..168732
                         /gene="VACA2K193"
         CDS             168358..168732
                         /gene="VACA2K193"
                         /function="unknown"
                         /note="similar to VACWR185, VACCP-B3R"
                         /codon_start=1

/translation="MKRLETIRHMWSVVYDHFNIVNGKECCYVHTHLSNQNLIPSTVK
TNLYMKTMGSCIQMDSMEALEYLSELKESGGWSPRPEMQEFEYPDGVEDTESIERLAE
EFFNRSELQAGKSVKFGNSINC"
         gene            169385..171061
                         /gene="VACA2K194"
```

```
        CDS               169385..171061
                          /gene="VACA2K194"
                          /function="ankyrin-like"
                          /note="similar to VACWR186, VACCP-B4R"
                          /codon_start=1

  /translation="MDFFKKEILDWSIYLSLHYIARVFSNFSTSHIIQDYNLVRTYEK
VDKTIVDFLSRLPNLFHILEYGENILHIYSMDDANTNIIIFFLDRVLNINKNGSFIHN
LGLSSSINIKEYVYQLVNNDHPDNRIRLMLENGRRTRHFLSYISDTVNIYICILINHG
FYIDAEDSYGCTLLHRCIYHYKKSESESYNELIKILLNNGSDVDKKDTYGNTPFILLC
KHDINNVELFEICLENANIDSVDFNRYTPLHYVSCRNKYDFVKLLISKGANVNARNKF
GTTPFYCGIIHGISLIKLYLESDTELEIDNEHIVRHLIIFDAVESLDYLLSRGVIDIN
YRTIYNETSIYDAVSYNAYNTLVYLLNRNGDFETITTSGCTCISEAVANNNKIIMEVL
LSKRPSLKIMIQSMIAITKHKQHNADLLKMCIKYTACMTDYDTLIDVQSLQQYKWYIL
RCFDEIDIMKRCYIKNKTVFQLVFCIKDINTLMRYGKHPSFVKCTSLDVYGSRVRNII
ASIRYRQRLISLLSKKLDAGDKWSCFPNEIKYKILENFNDNELSTYLKIL"
        gene              171165..172118
                          /gene="VACA2K195"
        CDS               171165..172118
                          /gene="VACA2K195"
                          /function="EEV type-I membrane glycoprotein:
required for

                          trans-Golgi/endosomal membrane-wrapping of IMV"
                          /note="similar to VACWR187, VACCP-B5R"
                          /codon_start=1

  /translation="MKTISVVTLLCVLPAVVYSTCTVPTMNNAKLTSTETSFNNNQKV
TFTCDQGYHSLDPNAVCETDKWKYENPCKKMCTVSDYVSELYNKPLYEVNSTMTLSCN
GETKYFRCEEKNGNTSWNDTVTCPNAECQPLQLEHGSCQPVKEKYSFGEYITINCDVG
YEVIGASYISCTANSWNVIPSCQQKCDIPSLSNGLISGSTFSIGGVIHLSCKSGFILT
GSPSSTCIDGKWNPILPTCVRSNEKFDPVDDGPDDETDLSKLSKDVVQYEQEIESLEA
TYHIIIVALTIMGVIFLISVIVLVCSCDKNNDQYKFHKLLP"
        gene              172200..172721
                          /gene="VACA2K196"
        CDS               172200..172721
                          /gene="VACA2K196"
                          /function="ankyrin-like"
                          /note="similar to VACWR188, VACCP-B6R"
                          /codon_start=1

  /translation="MSSSVDVDIYDAVRAFLLRHYYNKRFIVYGRSNAILHNIYRLFT
RCAVIPFDDIVRTMPNESRVKQWVMDTLNGIMMNERDITVCVGTGILFMEMFFDYNKN
SINNQLMYDIINSVSIILANERYRSAFNDDGIYIRRNMINKLYGYASLTTIGTIAGGV
CYYLLMHLVSLYK"
        gene              172759..173307
                          /gene="VACA2K197"
        CDS               172759..173307
                          /gene="VACA2K197"
                          /function="21kDa precursor protein processed to
18kDa

                          membrane protein: deletion reduces lesion in VAC-
mouse

                          skin model: host defense modulator"
                          /note="similar to VACWR189, VACCP-B7R"
                          /codon_start=1

  /translation="MYKKLITFLFVIGAVASYSNNEYTPFNKLSVKLYIDGVDNIENS
```

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YTDDNNELVLNFKEYTISIITESCDVGFDSIDIDVINDYKIIDMYTIDSSTIQRRGHT
CRISTKLSCHYDKYPYIHKYDGDERQYSITAEGKCYKGIKYEISMINDDTLLRKHTLK
IGSTYIFDRHGHSNTYYSKYDF"
```
        gene            173362..174180
                        /gene="VACA2K198"
        CDS             173362..174180
                        /gene="VACA2K198"
                        /function="soluble interferon-gamma receptor-like:
host
                        defense modulator"
                        /note="similar to VACWR190, VACCP-B8R"
                        /codon_start=1
```
/translation="MRYIIILAVLFINSIHAKITSYKFESVNFDSKIEWTGDGLYNIS
LKNYGIKTWQTMYTNVPEGTYDISAFPKNDFVSFWVKFEQGDYKVEEYCTGLCVEVKI
GPPTVTLTEYDDHINLYIEHPYATRGSKKIPIYKRGDMCDIYLLYTANFTFGDSKEPV
PYDIDDYDCTSTGCSIDFVTTEKVCVTAQGATEGFLEKITPWSSEVCLTPKKSVYTCA
IRSKEDVPNFKDKMARVIKRKFNKQSQSYLTKFLGSTSNDVTTFLSMLNLTKYS"
```
        gene            174267..174500
                        /gene="VACA2K199"
        CDS             174267..174500
                        /gene="VACA2K199"
                        /function="6kDa intracellular viral protein has N-
terminal
                        signal sequence"
                        /note="similar to VACWR191, VACCP-B9R"
                        /codon_start=1
```
/translation="MRSLIIVLLFPSIIYSMSIRRCEKTEEETWGLKIGLCIIAKDFY
PERTDCSVHLPTASEGLITEGNGFRDIRNTDKL"
```
        gene            174463..174963
                        /gene="VACA2K200"
        CDS             174463..174963
                        /gene="VACA2K200"
                        /function="unknown"
                        /note="similar to VACWR192, VACCP-B10R"
                        /codon_start=1
```
/translation="MDSGIYETPINYKKSNVSAVSVNNTIFVTGGLFINNSNSTIVVN
NMEKLDIYKDKQWSIIEMPMARVYHGIDSTFGMLYFAGGLSVTEQYGNLEKNNEISCY
NPRTNKWFDISYTIYKISISSLCKLNNVFYVFSKDIGYVEKYDGAWKLVHDRLPAIKA
LSTSPY"
```
        gene            175035..175253
                        /gene="VACA2K201"
        CDS             175035..175253
                        /gene="VACA2K201"
                        /function="unknown"
                        /note="similar to VACWR193, VACCP-11R"
                        /codon_start=1
```
/translation="MDTDVTNVEDIINEIDREKEEILKNVEIENNKNINKNHPNEYIR
EALVINTSSNSDSIDKEVIECICHDVGI"
```
        gene            175320..176171
                        /gene="VACA2K202"
        CDS             175320..176171
                        /gene="VACA2K202"
                        /function="ser/thr protein kinase-like"
```

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```
                              /note="similar to VACWR194, VACCP-B12R"
                              /codon_start=1

     /translation="MESFKYCFDNDGKKWIIGNTLYSGNSILYKVRKNFTSSFYNYVM
     KIDHKSHKPLLSEIRFYISVLDPLTIDNWTRERGIKYLAIPDLYGIGETDDYMFFVIK
     NSGRVFAPKDTESVFEACVTMINTLEFIHSRGFTHGKIEPRNILIRNKRLSLIDYSRT
     NKLYKSGNSHIDYNEDMITSGNINYMCVDNHLGATVSKRGDLEMLGYCMIEWFGGKLP
     WKNESSIKVIKQKKEYKKFIATFFEDCFPEGNEPLELVRYIELVYTLDYSQTPNYDRL
     RKLFIQD"
            gene              176269..176649
                              /gene="VACA2K203"
            CDS               176269..176649
                              /gene="VACA2K203"
                              /function="SPI-2/CrmA inhibits Fas-mediated
apoptosis,
                              IL-1 convertase, lipoxygenase pathway"
                              /note="similar to VACWR195, VACCP-B13R"
                              /codon_start=1

     /translation="MDIFREIASSMKGENVFISPASISSVLTILYYGANGSTAEQLSK
     YVETEENTDKVSAQNISFKSMNKVYGRYSAVFKDSFLRKIGDKFQTVDFTDCRTIDAI
     NKCVDIFTEGKINPLLDEPLSPSN"
            gene              176624..177292
                              /gene="VACA2K204"
            CDS               176624..177292
                              /gene="VACA2K204"
                              /function="SPI-2/CrmA inhibits Fas-mediated
apoptosis,
                              IL-1 convertase, lipoxygenase pathway"
                              /note="similar to VACWR195, VACCP-B14R"
                              /codon_start=1

     /translation="MNHCLLAISAVYFKAKWLTPFEKEFTSDYPFYVSPTEMVDVSMM
     SMYGKAFNHASVKESFGNFSIIELPYVGDTSMMVILPDKIDGLESIEQNLTDTNFKKW
     CDFMDAMFIDVHIPKFKVTGSYNLVDTLVKSGLTEVFGSTGDYSNMCNSDVSVDAMIH
     KTYIDVNEEYTEAAAATCALVSDCASTITNEFCVDHPFIYVIRHVDGKILFVGRYCSP
     TTNC"
            gene              177368..177817
                              /gene="VACA2K205"
            CDS               177368..177817
                              /gene="VACA2K205"
                              /function="unknown"
                              /note="similar to VACWR196, VACCP-B15R"
                              /codon_start=1

     /translation="MTANFSTHVFSPQHCGCDRLTSIDDVKQCLTEYIYWSSYAYRNR
     QCAGQLYSTLLSFRDDAELVFIDIRELVKHMPWDDVKDCAEIIRCYIPDEQKTIREIS
     AIIGLCAYAATYWGGEDHPTSNSLNALFVMLEMLNYVDYNIIFRRMN"
            gene              177901..178881
                              /gene="VACA2K206"
            CDS               177901..178881
                              /gene="VACA2K206"
                              /function="IL-1-beta-inhibitor: prevents febrile
response
                              in VAC-mouse intranasal model: host defense
modulator"
                              /note="similar to VACWR197, VACCP-B16R"
```

/codon_start=1

/translation="MSILPIIFLSIFFYSSFVQTFNASECIDKGQYFASFMELENEPV
ILPCPQINTLSSGYNILDILWEKRGADNDRIIPIDNGSNMLILNPTQSDSGIYICITT
NETYCDMMSLNLTIVSVSESNIDLISYPQIVNERSTGEMVCPNINAFIASNVNADIIW
SGHRRLRNKRLKQRTPGIITIEDVRKNDAGYYTCVLEYIYGGKTYNVTRIVKLEVRDK
IIPSTMQLPDGIVTSIGSNLTIACRVSLRPPTTDTDVFWISNGMYYEEDDGDGNGRIS
VANKIYMTDKRRVITSRLNINPVKEEDATTFTCMAFTIPSISKTVTVSIT"
      gene   complement(178927..179949)
                            /gene="VACA2K207"
      CDS   complement(178927..179949)
                            /gene="VACA2K207"
                            /function="unknown"
                            /note="similar to VACWR198, VACCP-B17L"
                            /codon_start=1

/translation="MSRKFMQVYEYDREQYLDEFIEDRYNDSFITSPEYYSAEKYMCR
YTTLNHNCINVRRCALDSKLLHDIITNCKIYNNIELVRATKFVYYLDLIKCNWVSKVG
DSVLYPVIFITHTSTRNLDKVSVKTYKGVKVKKLNRCADHAIVINPFVKFKLTLPNKT
SHAKVLVTFCKLRTDITQIEAPLPGNVLVYTFPDINKRIPGYIHVNIEGCIDGMIYIN
SSKFACVLKLHRSMYRIPPFPIDICSCCSQYTNDDIEIPIHDLIKDVAIFKNKETVYY
LKLNNKTIARFTYFNNIDTAITQEHEYVKIALGIVCKLMINNMHSIVGVNHSNTFVNC
LLEDNV"
      gene   180089..181813
                            /gene="VACA2K208"
      CDS   180089..181813
                            /gene="VACA2K208"
                            /function="ankyrin-like"
                            /note="similar to VACWR199, VACCP-B18R"
                            /codon_start=1

/translation="MSRRLIYVLNINRESTHKIQENEIYTYFSHCNIDHTSTELDFVV
KNYDLNRRQPVTGYTALHCYLYNNYFTNDVLKILLNHGVDVTMKTSSGRMPVYILLTR
CCNISHDVVIDMIDKDKNHLSHRDYSNLLLEYIKSRYMLLKEEDIDENIVSTLLDKGI
DPNFKQDGYTALHYYYLCLAHVYKPGECRKPITIKKAKRIISLFIQHGANLNALDNCG
NTPFHLYLSIEMCNNIHMTKMLLTFNPNFKICNNHGLTPILCYITSDYIQHDILVMLI
HHYETNVGEMPIDERRIIVFEFIKTYSTRPADSITYLMNRFKNINIYTRYEGKTLLHV
ACEYNNTQVIDYLIRINGDINALTDNNKHAIQLIIDNKENSPYTIDCLLYILRYIVDK
NVIRSLVDQLPSLPIFNIKSFEKFISYCILLDDTFYNRHVRNRNSKTYRYAFSKYMSF
DKYDGIITKCHKETILLKLSTVLDTTLYAVLRCHNSKKLRRYLNELKKYNNDKSFKIY
SNIMNERYLNVYYKDMYVSKVYDKLFPVFTDKNCLLTLLPSEIIYEILYMLTINDLYN
ISYPPTKV"
      gene   181885..182682
                            /gene="VACA2K209"
      CDS   181885..182682
                            /gene="VACA2K209"
                            /function="IFN-alpha/beta-receptor-like secreted
                            glycoprotein: host defense modulator"
                            /note="similar to VACWR200, VACCP-B19R"
                            /codon_start=1

/translation="MTMKMMVHIYFVSLSLLLLLFHSYAIDIENEITEFFNKMRDTLP
AKDSKWLNPACMFGGTMNDMATLGEPFSAKCPPIEDSLLSHRYKDYVVKWERLEKNRR
RQVSNKRVKHGDLWIANYTSKFSNRRYLCTVTTKNGDCVQGIVRSHIRKPPSCIPKTY
ELGTHDKYGIDLYCGILYAKHYNNITWYKDNKEINIDDIKYSQTGKKLIIHNPELEDS
GRYDCYVHYDDVRIKNDIVVSRCKILTVIPSQDHRFKLKRNCGYASN"
      gene   182669..182944

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                                  /gene="VACA2K210"
          CDS                     182669..182944
                                  /gene="VACA2K210"
                                  /function="[ITR] ankyrin-like"
                                  /note="similar to VACWR019, VACCP-C9L"
                                  /codon_start=1

/translation="MRQIKINGTDMLTVMYMLNKPTKKRYVNNPIFTDWANKQYKFYN
QIIYNANKLIEQSKKIDDMIEEVSIDDNRLSTLPLEIRHLIFSYAFL"
          gene                    183117..183284
                                  /gene="VACA2K211"
          CDS                     183117..183284
                                  /gene="VACA2K211"
                                  /function="[ITR] unknown"
                                  /note="similar to VACWR018"
                                  /codon_start=1

/translation="MSSKGGSGGMWSVFIHGHDGSNKGSKTYTSGGGGMWGGGSSSGV
NGGVKSGTGKI"
          gene                    183388..183603
                                  /gene="VACA2K212"
          CDS                     183388..183603
                                  /gene="VACA2K212"
                                  /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                                  host-range"
                                  /note="similar to VACWR017, CPXVBR-V024"
                                  /codon_start=1

/translation="MFDYLENEEVALDELKQMLRDRDPNDTRNQFKNNALHAYLFNEH
CNNVEVVKLLLDSGTNPLRKNWRQLPH"
          gene                    183625..183858
                                  /gene="VACA2K213"
          CDS                     183625..183858
                                  /gene="VACA2K213"
                                  /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                                  host-range"
                                  /note="similar to VACWR016, CPXVBR-V024"
                                  /codon_start=1

/translation="MLKLKDIAMALLEATGFSNINDFNIFSYMKSKNVDVDLIKVLVE
HGFDLSVKCENHRSVIENYVMTMILFLKLLICS"
          gene                    184107..184514
                                  /gene="VACA2K214"
          CDS                     184107..184514
                                  /gene="VACA2K214"
                                  /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                                  host-range"
                                  /note="similar to VACWR015, CPXVBR-V024"
                                  /codon_start=1

/translation="MKGIDNTAYSYIDDLTCCTRGIMADYLNSDYRYNKDVDLVKLFL
ENGKPHGIMCSIVPLWRNDKETIFLILKTMNSDVLQHILIEYMTFGDIPLVEYGTVVN
KEAIHGYFRNINIDSYTMKYLLKKEGRCHQLSR"
          gene                    184603..185031
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                         /gene="VACA2K215"
         CDS             184603..185031
                         /gene="VACA2K215"
                         /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                         host-range"
                         /note="similar to VACWR014, CPXVBR-V024"
                         /codon_start=1

/translation="MSYACPILSTINICLPYLKDINMIDKRGETLLHKAVRYNKQSLV
SLLLESGSDVNIRSNNGYTCIAIAINESKNIELLKMLLCHKPTLDYVIDSLREISNIV .
DNYYAIKQCIKYAMIIDDCTSSKIPESISQRYNDYIDLCN"
         gene            185044..185316
                         /gene="VACA2K216"
         CDS             185044..185316
                         /gene="VACA2K216"
                         /function="[ITR] gene fragment, ankyrin-like 77kDa
cowpox
                         host-range"
                         /note="similar to VACWR014, CPXVBR-V024"
                         /codon_start=1

/translation="MKKIMVGGNTMFSLIFTDHGAKIIHRYANNPELREYYELKQNKI
YVEAYDIISNAIVKHDRIHKTIESVDDNTYISNLPYTIKYKIFEQQ"
         gene            185375..185749
                         /gene="VACA2K217"
         CDS             185375..185749
                         /gene="VACA2K217"
                         /function="[ITR] interleukin-18-binding protein:
host
                         defense modulator: absent from VACCP"
                         /note="similar to VACWR013/VARBSH-D7L/006"
                         /codon_start=1

/translation="MRILFLIAFMYGCVHPYVNADEIKCPNLNIVTSSGEFRCTGCVK
FMPNFSYMYWLAKDMRSDEDTKFIEHLGDGIKEDETVRTIDGRIVTLQKVLHVTDTNK
FAHYRFTCVLTTIDGIYKKNVC"
         gene            complement(185918..186106)
                         /gene="VACA2K218"
         CDS             complement(185918..186106)
                         /gene="VACA2K218"
                         /function="[ITR] gene fragment, zinc finger-like:
                         apoptosis: host defense modulator"
                         /note="similar to VACWR012/207, 242aa VARBSH-
D6R/005"
                         /codon_start=1

/translation="MKLFTQNDRYFGLLDSCNHIFCITCINIWHKTRRETGASDNCPI
CRTRFRNITMSKFYKLVN"
         gene            complement(186251..186502)
                         /gene="VACA2K219"
         CDS             complement(186251..186502)
                         /gene="VACA2K219"
                         /function="[ITR] gene fragment, zinc finger-like:
                         apoptosis: host defense modulator"
                         /note="similar to VACWR011/208, 242aa VARBSH-
D6R/005"
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/codon_start=1

/translation="MHYPKYYINITKINPHLANQFRAWKKRIAGRDYMTNLSRDTGIQ
QSKLTETIRNCQKNRNIYGLYIHYNLVINWITDVIINQY"
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          gene               187110..188105
                             /gene="VACA2K220"
          CDS                187110..188105
                             /gene="VACA2K220"
                             /function="[ITR] unknown"
                             /note="similar to VACWR010/209, VACCP-C10L"
                             /codon_start=1
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/translation="MDIYDDKGLQTIKLFNNEFDCIRNDIRELFKHVTDSDSIQLPME
DNSDIIENIRKILYRRLKNVECVDIDNTITFMKYDPNDDNKRTCSNWVPLTNNYMEYC
LVIYLETPICGGKIKLYHPTGNIKSDKDIMFAKTLDFKSKKVLTGRKTIAVLDISVSY
NRSITTIHYNDDVDIDIHTDKNGKELCYCYITIDDHYLVDVETIGVIVNRSGKCLLVN
NHLGIGIVKDKRISDSFGDVCMDTIFDFSEARELFSLTNDDNRNIAWDTDKLDDDTDI
WTPVTEDDYKFLSRLVLYAKSQSDTVFDYYVLTGDTEPPTVFIFKVTRFYFNMLK"
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          gene               complement(188258..188677)
                             /gene="VACA2K221"
          CDS                complement(188258..188677)
                             /gene="VACA2K221"
                             /function="[ITR] secreted epidermal growth factor-
like:
                             binds EGF receptor"
                             /note="similar to VACWR009/210,VACCP-C11R"
                             /codon_start=1
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/translation="MSMKYLMLLFAAMIIRSFADSGNAIETTLPEITNATTDIPAIRL
CGPEGDGYCLHGDCIHARDIDGMYCRCSHGYTGIRCQHVVLVDYQRSEKPNTTTSYIP
SPGIMLVLVGIIIMCCLLSVYRFTRRTKLPLQDMVVP"
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          gene               189100..190173
                             /gene="VACA2K222"
          CDS                189100..190173
                             /gene="VACA2K222"
                             /function="[ITR] serine protease inhibitor-like
SPI-1:
                             host defense modulator"
                             /note="similar to VACWR205, VACCP-C12L"
                             /codon_start=1
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/translation="MDIFKELIVKHPDENVLISPVSILSTLSILNHGAAGSTAEQLSK
YIENMNENTPDDKKDDNNDMDVDIPYCATLATANKIYGSDSIEFHASFLQKIKDDFQT
VNFNNANQTKELINEWVKTMTNGKINSLLTSPLSINTRMTVVSAVHFKAMWKYPFSKH
LTYTDKFYISKNIVTSVDMMVGTENNLQYVHINELFGGFSIIDIPYEGNSSMVIILPD
DIEGIYNIEKNITDEKFKKWCGMLSTKSIDLYMPKFKVEMTEPYNLVPILENLGLTNI
FGYYADFSKMCNETITVEKFLHTTFIDVNEEYTEASAVTGVFMTNFSMVYRTKVYINH
PFMYMIKDNTGRILFIGKYCYPQ"
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          gene               190329..190901
                             /gene="VACA2K223"
          CDS                190329..190901
                             /gene="VACA2K223"
                             /function="[ITR] unknown"
                             /note="similar to VACWR206, VACCP-C14L"
                             /codon_start=1
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/translation="MMIYGLIACLIFVTSSIASPLYIPVIPPITEDKSFNSVEVLVSL

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FRDDQKDYTVTSQFNNYTIDTKDWTIGVLSTPDGLDIPLTNITYWSRFTIGRALFKSE
SEDIFQKKMSILGVSIECKKSSTLLTFLTVRKMTRVFNKFPDMAYYRGDCLKAVYVTM
TYKNTKTGETDYTYLSNGGLPAYYRNGVDG"
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        gene            191153..191308
                        /gene="VACA2K224"
        CDS             191153..191308
                        /gene="VACA2K224"
                        /function="[ITR] gene fragment, unknown"
                        /note="similar to CPXGRI-B22R"
                        /codon_start=1
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/translation="MNLQKLSLAIYLTATCSWCYETCIRKTALYHDIQLEHVEDNKDS
VASLPYK"
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        gene            191719..191988
                        /gene="VACA2K225"
        CDS             191719..191988
                        /gene="VACA2K225"
                        /function="[ITR] unknown"
                        /note="similar to VACCP-C15L/B21R"
                        /codon_start=1
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/translation="MSLESFIITTFNNNSSTNIDNMCHLYVKVCPSSLLFRLFVECCD
INKLVEGTTPLHCYLMNEGFESSVLKNLLKEYVMTVMVTFHYTNI"
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        gene            192324..192869
                        /gene="VACA2K226"
        CDS             192324..192869
                        /gene="VACA2K226"
                        /function="[ITR] unknown"
                        /note="similar to VACCP-C16L/B22R"
                        /codon_start=1
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/translation="MISLSFLIHNPLKKWKLKPSISINGYRSTFTMAFPCAQFRPCHC
HATKDSLNTVADVRHCLTEYILWVSHRWTHRETAGPLYRLLISFRTDATELFGGELKD
SLPWDNIDNCVEIIKCFIRNDSMKTAEELRAIIGLCTQSAIVSGRVFNDKYIDILLML
RKILNENDYLTLLDHIRTAKY"
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        gene            192916..194064
                        /gene="VACA2K227"
        CDS             192916..194064
                        /gene="VACA2K227"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACCP-C17L/B23R"
                        /codon_start=1
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/translation="MIAFIIFREIGIISTRIAMDCTCILCRLLDEDVTYKKIKLEIET
CHNLSKHIDRRGNNALHCYVFNKCDTDIKIVRLLLSRGVERLCRNNEGLTPLGVYSKH
RYVKSQIVHLLISSYSNSSNELKSNINDFDLYSDNIDLRLLKYLIVDKRIRPSKNTNY
AINGLGLVDIYVTTPNPRPEVLLWLLKSECYSTGYVFRTCMYNSDMCKNSLHYYISSH
RESQSLSKDVIKCLINNNVSIHGRDEGGSLPIQYYWSFSTIDIEIVKLLLIKDVDTCR
VYDVSPILEAYYLNKRFRVTPYNVDMEIVNLLIERRHTLVDVMRSITSYDSREYNHYI
IDNILKRFRQQDESIVQAMLINYLHYGDMVVRCMLDNGQQLSSARLLC"
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        gene            194158..194754
                        /gene="VACA2K228"
        CDS             194158..194754
                        /gene="VACA2K228"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACCP-C18L/B24R"
                        /codon_start=1
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/translation="MYGLILSRFNNCGYHCYETILIDVFDILSKYMDNIDMIDNENKT
LLYYAVDVNNIQFAKRLLEYGASVTTSRSIINTAIQKSSYRRENKTKLVDLLLSYHPT
LETMIDAFNRDIRYLYPEPLFACIRYALIIDDDFPSKVKYDIAGRHKELKRYRVDINR
MKNAYISGVSMFDILFKRSKRHRLRYAKNPTSNGTKKN"
        gene            194996..195409
                        /gene="VACA2K229"
        CDS             194996..195409
                        /gene="VACA2K229"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACWR008/211, VACCP-C19L/B25R"
                        /codon_start=1

/translation="MSRINITKKIYCSVFFHIFNYEKVNHYEMDEIVRIVRDSMWYIP
NVFMDDGKNEGHVSVNNVCHMYFTFFDVDTSSHLFKLVIKHCDLNKRGNSPLHCYTMN
TRFNPSVLKILLHHGMRNFDSKDDHYQSITRSLIY"
        gene            195659..196045
                        /gene="VACA2K230"
        CDS             195659..196045
                        /gene="VACA2K230"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACWR007/212, VACCP-C20L/B26R"
                        /codon_start=1

/translation="MEQTLTPLHTYLQQYTKHSPRVVYALLSRGYVIILIVHPSWNDC
ATGHILIMLLNWHEQKEEGQHLLYLFIKHNQGYTLNILRYLLDRFDIQKDEYYNTAFQ
NCNNNVASYIGYDINLPTKDGIRLGV"
        gene            195978..196313
                        /gene="VACA2K231"
        CDS             195978..196313
                        /gene="VACA2K231"
                        /function="[ITR] gene fragment, ankyrin-like"
                        /note="similar to VACWR006/213, VACCP-C21L/B27R"
                        /codon_start=1

/translation="MLPHTSDTTSTFRLKTVFDLVFENRNIIYKADVVNDIIHHRLKV
PMIKSLFYKMSEFSPYDDYYVKKILAYCLLRDESFAELHSKFCLNEDYKSVFMKNISF
DKIDSIIVT"
        gene            196677..197045
                        /gene="VACA2K232"
        CDS             196677..197045
                        /gene="VACA2K232"
                        /function="[ITR] gene fragment, TNF-alpha-
receptor-like:
                        host defense modulator"
                        /note="similar to VACWR004/215, VARBSH-G2R/203"
                        /codon_start=1

/translation="MKSVLYSYILFLSCIIINGRDIAPHAPSDGKCKDNEYKRHNLCP
GTYASRLCDSKTNTQCTPCGSGTFTSRNNHLPACLSCNGRCDRVTLLTIESVNALPDI
IVFSKDHPDARHVFPKQNVE"
        gene            196928..197368
                        /gene="VACA2K233"
        CDS             196928..197368
                        /gene="VACA2K233"
                        /function="[ITR] gene fragment, TNF-alpha-
receptor-like:
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```
                    host defense modulator"
                    /note="similar to VACWR002/217, VARBSH-G2R/203"
                    /codon_start=1

/translation="MRSCNTTHNRICECSPGYYCLLKGSSGCKACVSQTKCGIGYGVS
GDVICSPCGLGTYSHTVSSADKCEPVPRNTFNYIDVEINLYPVNDTSCTRTTTTGLSE
SISTSELTITMNHKDCDPVFRDGYFSVLNKVATSGFFTGERCAL"
        gene            197772..198497
                    /gene="VACA2K234"
        CDS             197772..198497
                    /gene="VACA2K234"
                    /function="[ITR] chemokine-binding protein: host
defense
                    modulator"
                    /note="similar to VACWR001/218, VACCP-C23L/B29R"
                    /codon_start=1

/translation="MHVPASLQQSSSSCTEEENKHHMGIDVIIKVTKQDQTPTNDKIC
QSVTEITESESDPDPEVESEDDSTSVEDVDPPTTYYSIIGGGLRMNFGFTKCPQIKSI
SESADGNTVNARLSSVSPGQGKDSPAITHEEALAMIKDCEVSIDIRCSEEEKDSDIKT
HPVLGSNISHKKVSYEDIIGSTIVDTKCVKNLEFSVRIGDMCKESSELEVKDGFKYVD
GSASEGATDDTSLIDSTKLKACV"
BASE COUNT    66264 a   33364 c   33247 g   66359 t
ORIGIN
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     61 aaagagaata aaaatatttt tgtaaaactt tttttatgag accatcaaag agagaaagag
    121 aataaaaata tttttgtaaa acttttttta tgagaccatc aaagagagaa agagaataaa
    181 aatatttttg taaaactttt tttatgagac catcaaagag agaaagagaa taaaaatatt
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    301 aaactttttt tatgagacca tcagaaagag gtttaatatt tttgtgatac cctgaaagga
    361 aataggaata ggaataggaa tagtgtcata atcgtatcac actattgaga cagaaaaaga
    421 agaagtcgcg agaggtaact ttttgtgaat gtagttaaga acatttttgt tttgcaaacc
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    541 ctactcatcc aatttcagat gaatagagtt atcgattcag acacacgctt tgagttttgt
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   1021 ggtgaatcca aagttcattc tcagacctcc accgatgatg gagtaataag tggtaggagg
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   1141 ctcggactct gtaatttccg ttacggattg gcaaatctta tcattggtcg gtgtttggtc
   1201 ttgctttgtg actttgataa taacatcgat tcccatatga tgtttgtttt cttcttccgt
   1261 acacgaggag gaggattgct gaagactggc aggcacatgc atgccaggac gatatattgt
   1321 ttcatgattg ctattgattg attactgttc tttatgattc tacttcctta ccgtgcaata
   1381 aattagaata tattttctac ttttacgaga aattaattat tgtatttatg ggtgaaaaac
   1441 ttactataaa aagcgggtgg gtttggaatt agtgatcagt ttatgtatat cgcaactacc
   1501 gggcatatgg ctatcgacat cgagaacatt acccacatga taagagattg tatcagtttc
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   1861 tcgtccgagt acacgatgtg tcgttaactg gatacaggtt aatttccaca tcgatatagt
   1921 taaacgtatt tctgggtacg ggttcgcatt tatctgcgga agagacggtg tgagaatatg
   1981 ttccgagacc acacggagaa cagatgacgt ctccggatac tccgtatcct attccacatt
   2041 ttgtttggga aacacatgcc ttgcatccgg atgatccttt gagaagacaa taatatccgg
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3001 atccgccttg tatatgatgt ttctgttttc aaacaccaag tcgaataccg tctttagtcg
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3361 tatgtttggt atactgttga aggtaagtgt gtaacggcgt taatgtttgc tccataatct
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83

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86

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101

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102

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106

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111

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